

**U.S. Department of the Interior
Bureau of Land Management**

Environmental Assessment

DOI-BLM-NV-S010-2011-0148-EA

November 2011

NVN089424 Copper Mtn Solar III

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Environmental Assessment: DOI-BLM-NV-S010-2011- 0148-EA

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Acronyms and Abbreviations

APE :	Area of potential effects
bBA:	A-weighted decibels
BCCE:	Boulder City Conservation Easement
BLM:	United States Department of the Interior, Bureau of Land Management
BMP:	best management practice
Boulder City:	City of Boulder City, Nevada
CAA:	Clean Air Act
CFR:	Code of Federal Regulations
CMS North:	Copper Mountain Solar North
DAQEM:	The Clark County Department of Air Quality and Environmental Management
EA:	environmental assessment
EPA:	United States Environmental Protection Agency
FEMA:	Federal Emergency Management Agency
FLPMA:	Federal Land Policy and Management Act
kV:	kilovolt
MBTA:	Migratory Bird Treaty Act
MSHCP:	Multiple Species Habitat Conservation Plan
MW:	megawatt
NAAQS:	National Ambient Air Quality Standards
NDEP:	Nevada Division of Environmental Protection
NDOW:	Nevada Department of Wildlife
NEPA:	National Environmental Policy Act
NRHP:	National Register of Historic Places
OHV:	off-highway vehicle
PM10:	particulate matter smaller than 10 microns in aerodynamic diameter
PM2.5:	particulate matter smaller than 2.5 microns in aerodynamic diameter

PV:	photovoltaic
RMP:	resource management plan
ROW:	right-of way
SPCC:	Spill Prevention, Control, and Countermeasures
US:	United States
USC:	United States Code
USDA NRCS:	United States Department of Agriculture, Natural Resources Conservation Service
USFWS:	United States Fish and Wildlife Service
USGS:	United States Geological Survey

Chapter 1. Purpose and Need

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1.1. Identifying Information

1.1.1. Title, EA Number, and Type of Project:

Copper Mountain Solar North, DOI-BLM-NV-S010–2011–0148–EA, Gen-Tie Transmission Line Project

1.1.2. Location of Proposed Action:

Township 24 South, Range 63 East, Sections 4, 5, 7, 8, 18, 19, and 30; and Township 24 South, Range 62 East, Sections 1, 2, 12, 24, 25, 35, and 36 Mount Diablo Base Meridian, Clark County, Nevada.

1.1.3. Name and Location of Preparing Office:

Las Vegas Field Office, 4701 N. Torrey Pines Drive, Las Vegas, NV 89130

1.1.4. Identify the subject function code, lease, serial, or case file number:

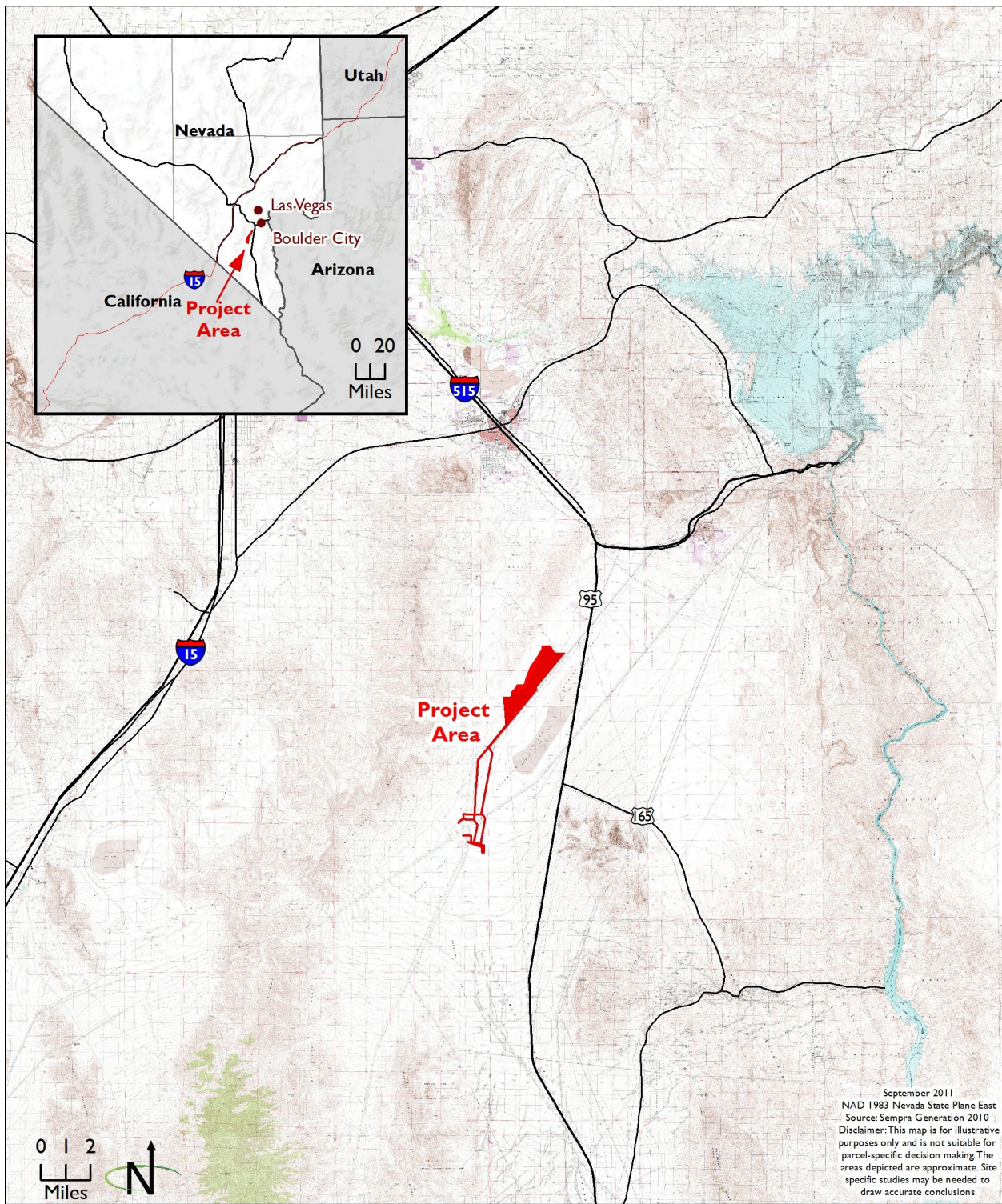
Case File Number NVN-089424

1.1.5. Applicant Name:

Sempra Generation.

1.2. Background

On behalf of its wholly owned subsidiary, Copper Mountain Solar North, LLC (CMS North), Sempra Generation is seeking to obtain a Rights-of-way (ROW) grant from the United States (US) Department of the Interior, Bureau of Land Management (BLM) to construct two generation-tie (gen-tie) power lines within designated federal utility corridors for the purpose of delivering electricity from the proposed CMS North project to existing off-site electrical substations. The proposed project site is in Clark County, Nevada, approximately 7.5 miles southwest of the City of Boulder City (Boulder City) (**Figure 1-1**, Project Area).



Project Area
 Clark County, Nevada

Figure I-1

Figure 1.1. Project Area
Chapter I Purpose and Need
Background

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1.3. Purpose of and Need for Action

Taking into account the BLM's multiple use mandate, the purpose of and need for the proposed action is to respond to a FLPMA ROW application submitted by Sempra Generation to construct, operate, maintain, and decommission two gen-tie lines on public lands administered by the BLM in compliance with the FLPMA, BLM ROW regulations, and other applicable federal laws and policies. This proposed action would assist the BLM in addressing the management objectives in the Energy Policy Act of 2005 (Title II, Section 211), which establishes a goal for the Secretary of the Interior to approve 10,000 megawatts (MW) of electricity from non-hydropower renewable energy projects located on public lands. This proposed action would also further the purpose of Secretarial Order 3285A1 (March 11, 2009) that establishes the development of environmentally responsible renewable energy as a priority for the Department of the Interior.

1.4. Scope of Analysis and Decisions to be Made

This EA presents two alternative gen-tie line routes for analysis, which are discussed in detail in **Section 2.1.2, Details of the Proposed Action**.

Under both alternatives, the CMS North project would consist of two components located partially on BLM-administered land: (1) a 230-kilovolt (kV) gen-tie power line to deliver electricity from a proposed solar energy-generating facility to the existing Merchant and McCullough electrical substations; and (2) a 230-kV gen-tie power line connecting the Merchant Substation to the existing Eldorado Substation to expand the deliverability options for the electricity generated by the proposed solar facility.

The BLM will decide whether to deny the proposed ROW, grant the ROW, or grant the ROW with modifications. Modifications may include modifying the proposed use or changing the route or location of the proposed facilities (43 Code of Federal Regulations [CFR] 2805.10[a][1]).

Sempra Generation is also proposing to construct a solar energy-generating facility on private land that is considered a connected action to the gen-tie lines for which the BLM would grant a ROW (see **Section 2.1.1, Non-federal Connected Action**). The solar facility is dependent upon the BLM's approval of the gen-tie lines because electricity generated at the solar facility cannot be transported to the power grid without utilizing BLM utility corridors for a portion of the gen-tie routes. Because the connected action can be prevented by BLM decision making, the effects of the connected action are properly considered indirect effects of the Proposed Action and, as such, are analyzed as effects of the Proposed Action (40 CFR 1508.7 and 1508.25[c]).

1.5. Relationship to Laws, Regulations, Policies, and Other Plans

This EA has been prepared in accordance with the following statutes and implementing regulations, policies, and procedures:

- National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-190, 42 United States Code [USC] 4321 et seq.);
- 40 CFR 1500 et seq.: Regulations for Implementing the Procedural Provisions of NEPA;
- BLM NEPA Handbook (H-1790-1) (BLM 2008a);

- The FLPMA, as amended, Sections 103(c) and 501(a)(4);
- Boulder City Master Plan (Boulder City 2003);
- Clark County Multiple Species Habitat Conservation Plan (Clark County 2000); and
- Las Vegas Resource Management Plan (RMP) and Final Environmental Impact Statement (BLM 1998).

The BLM land uses in southern Nevada are managed under the Las Vegas Resource Management Plan (RMP) and Final Environmental Impact Statement (BLM 1998). The RMP provides management objectives and directions for lands within the Las Vegas District of the BLM. The BLM manages approximately 2.5 million acres of public land in Clark County. The CMS North Project is in conformance with the RMP, specifically objective RW-1 (providing legal access to major utility transmission lines and related facilities) and management action RW-1-h (public land is available for ROW at agency discretion under the FLPMA).

Chapter 2. Proposed Action and Alternatives

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2.1. Proposed Action

The two gen-tie lines described in **Section 1.3** are actions under consideration for ROW grants by the BLM and, therefore, are considered the Proposed Action. Sempra Generation has applied to BLM for a ROW to construct and operate the following:

- A 230-kV gen-tie power line to deliver electricity from the proposed CMS North project to the existing Merchant and McCullough electrical substations; and
- A 230-kV gen-tie power line (the “CMS Link”) connecting the Merchant Substation to the existing Eldorado Substation.

The gen-tie lines would originate and terminate on Boulder City property leased by the applicant and would traverse BLM-managed utility corridors and Boulder City property.

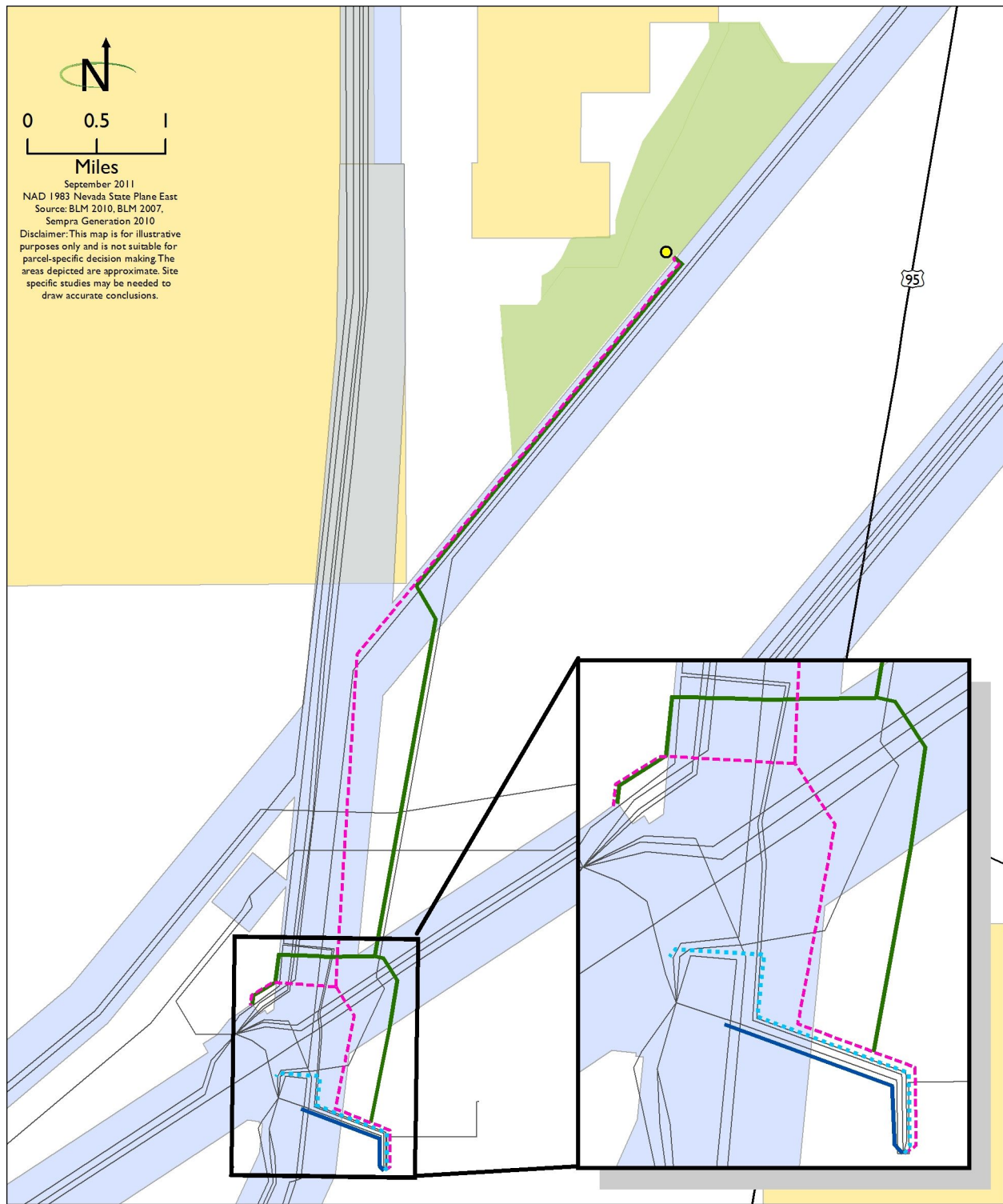
The two routing alternatives are described in **Section 2.1.2**, Overview of Alternative 1 and Alternative 2.

2.1.1. Non-federal Connected Action

Sempra Generation also proposes to construct and operate an up to 220 MW solar energy-generating facility to be located on approximately 1,400 acres of land owned by Boulder City and leased by the applicant. All identified feasible gen-tie line routes from this generating facility would require crossing BLM-managed utility corridors. As such, construction and operation of this facility cannot proceed without BLM approval of the gen-tie lines to transport electricity generated at the solar facility to the power grid. Because the non-federal connected action and its effects can be prevented by BLM decision making, the effects of the non-federal connected action are properly considered indirect effects of the Proposed Action and, as such, are analyzed as effects of the Proposed Action (40 CFR 1508.7 and 1508.25[c]).

2.1.2. Overview of Alternative 1 and Alternative 2

Sempra Generation has developed two routing alternatives, Alternatives 1 and 2, for the gen-tie line (**Figure 2-1**, Proposed Gen-tie Routes and BLM Utility Corridor), which would connect the solar energy-generating facility to the McCullough Substation with one circuit and to the Merchant Substation with the other circuit. Both alternatives generally parallel existing transmission lines to the extent feasible. Under either alternative, a 120-foot-wide permanent ROW is requested. As described under Section 2.1, both alternatives also include a separate gen-tie line, the CMS Link, necessary to link the existing Merchant Substation to the existing Eldorado Substation, increasing the distribution options for the electricity generated at CMS North.



Proposed Gen-tie Routes and BLM Utility Corridors

Clark County, Nevada

- | | | |
|----------------------------------|-------------------------------|--|
| — Gen-tie Alternative 1 | ■ Copper Mountain Solar North | ■ BLM Utility Corridor |
| - - - Gen-tie Alternative 2 | ● Proposed Substation | ■ Bureau of Land Management |
| — CMS Link Alternative 1 | — Existing Transmission Line | □ Private Land (Including city & county) |
| - · - · - CMS Link Alternative 2 | | |

Figure 2-1

Figure 2.1. Proposed Gen-tie Routes and BLM Utility Corridors

Chapter 2 Proposed Action and Alternatives

Overview of Alternative 1 and Alternative 2

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2.1.2.1. Gen-tie Alternative 1

The total gen-tie length in Alternative 1 is approximately 8.5 miles, 4.9 miles of which would be within designated utility corridors administered by the BLM. The remaining 3.6 miles would be located on land owned by Boulder City. The gen-tie line would be a double circuit line, with one circuit connecting directly to the McCullough Substation and the other circuit connecting directly to the Merchant Substation.

The gen-tie in Alternative 1 would initiate within the CMS North leased property, exit directly southeast onto the BLM utility corridor, turn southwest for approximately 3.1 miles within the existing utility corridor, and turn south onto property owned by Boulder City and leased by CMS North for approximately 2.3 miles. At this point, one circuit would re-enter the existing BLM utility corridor for a distance of approximately 0.7-mile, and then would exit the BLM utility corridor onto property owned by Boulder City for approximately 0.7-mile before terminating at the Merchant Substation. The second circuit would run west across the BLM utility corridor for approximately 0.7-mile before turning southwest for approximately 0.4-mile to connect with the McCullough Substation.

Under Alternative 1, total area in the 120-foot-wide BLM-administered ROW would be approximately 73 acres. Approximately 52 additional acres of the gen-tie ROW would be located on Boulder City land.

2.1.2.2. Gen-tie Alternative 2

The total gen-tie length in Alternative 2 is approximately 8.4 miles, 8.1 miles of which would be within designated utility corridors administered by the BLM. The remaining 0.3-mile would be located on land owned by Boulder City.

Gen-tie Alternative 2 would initiate within the CMS North leased property and would exit directly southeast into the BLM utility corridor, turning southwest for approximately 3.7 miles, and then turning south for approximately 2.5 miles. At this point, one circuit would turn southwest, following the BLM utility corridor for a length of approximately 0.5-mile, continuing south for approximately 0.7-mile across Boulder City lands, and then turning due east and terminating at the Merchant Substation. The second circuit would run west for 0.5-mile through the BLM utility corridor before turning south for 0.2-mile to connect with the McCullough Substation.

Under Alternative 2, total area in the 120-foot-wide BLM-managed utility corridor would be approximately 119 acres. Approximately 4 acres of the gen-tie ROW would be located on Boulder City land.

2.1.2.3. CMS Link Alternative 1

The CMS Link, a separate gen-tie line, would connect the Merchant Substation to the Eldorado Substation. The CMS Link would initiate at the Merchant Substation on land leased by Sempra Generation and run north onto Boulder City property before turning northwest on Boulder City property and entering the BLM utility corridor. The CMS Link would generally run parallel to the existing line that runs from the Merchant Substation to the Eldorado Substation and would enter the Eldorado Substation from the east. The CMS Link is approximately 0.6-mile long, approximately 0.3-mile of which would be located within a BLM-managed utility corridor.

2.1.2.4. CMS Link Alternative 2

The CMS Link in Alternative 2 would be approximately 1.1 miles in length, 0.8-mile of which would be within a BLM-managed utility corridor.

Under Alternative 2, the CMS Link would initiate at the Merchant Substation on land leased by Sempra Generation and run north onto Boulder City property before turning northwest on Boulder City property and entering the BLM-managed utility corridor. The line would then turn north within the corridor and then west, so that it would tie into the Eldorado substation from the north. The CMS Link in Alternative 2 would generally parallel existing lines.

2.1.3. Area of Disturbance

Tables 2.1, 2.2, 2.3, and 2.4 present acreages and general dimensions of the components of the two gen-tie and CMS Link alternatives.

Table 2.1. Acreages and Dimensions of Gen-tie Alternative 1

Item	Value (Approximate)
Gen-tie Length	8.5 miles
Length within BLM Utility Corridors	4.9 miles
Tower Base Dimensions	34 feet by 34 feet
Temporary Land Disturbance at Each Structure	120 feet by 120 feet
Permanent Land Disturbance at Each Structure	60 feet by 60 feet
Temporary Land Disturbance at Each Wire Pull and Splice Site	200 feet by 200 feet
Permanent ROW Area (Entire Line)	125 acres
Permanent ROW Area (BLM Corridor Only)	73 acres
Estimated Temporary Construction Disturbance (Entire Line)	50 acres
Estimated Permanent Disturbance (Entire Line)	14 acres
Estimated Temporary Construction Disturbance (BLM Corridor Only)	29 acres
Estimated Permanent Disturbance (BLM Corridor Only)	8 acres
Source: Sempra Generation 2010	

Table 2.2. Acreages and Dimensions of Gen-tie Alternative 2

Item	Value (Approximate)
Gen-tie Length	8.4 miles
Length within BLM Utility Corridors	8.1 miles
Tower Base Dimensions	34 feet by 34 feet
Temporary Land Disturbance at Each Structure	120 feet by 120 feet
Permanent Land Disturbance at Each Structure	60 feet by 60 feet
Temporary Land Disturbance at Each Wire Pull and Splice Site	200 feet by 200 feet
Permanent ROW Area (Entire Line)	123 acres
Permanent ROW Area (BLM Corridor Only)	119 acres
Estimated Temporary Construction Disturbance (Entire Line)	46 acres
Estimated Permanent Disturbance (Entire Line)	14 acres
Estimated Temporary Construction Disturbance (BLM Corridor Only)	8.8 acres
Estimated Permanent Disturbance (BLM Corridor Only)	2.1 acres
Source: Sempra Generation 2010	

Table 2.3. Acreages and Dimensions of CMS Link Alternative 1

Item	Value (Approximate)
Gen-tie Length	0.6 miles
Length within BLM Utility Corridors	0.3 miles
Tower Base Dimensions	34 feet by 34 feet
Temporary Land Disturbance at Structure	120 feet by 120 feet
Permanent Land Disturbance at Structure	60 feet by 60 feet
Temporary Land Disturbance at Each Wire Pull and Splice Site	200 feet by 200 feet
Permanent ROW Area (Entire Line)	8.3 acres
Permanent ROW Area (BLM Corridor Only)	3.7 acres
Estimated Temporary Construction Disturbance (Entire Line)	6.7 acres
Estimated Permanent Disturbance (Entire Line)	1.5 acres
Estimated Temporary Construction Disturbance (BLM Corridor Only)	3.0 acres
Estimated Permanent Disturbance (BLM Corridor Only)	0.7 acres
Source: Sempra Generation 2010	

Table 2.4. Acreages and Dimensions of CMS Link Alternative 2

Item	Value (Approximate)
Gen-tie Length	1.1 miles
Length within BLM Utility Corridors	0.8 miles
Tower Base Dimensions	34 feet by 34 feet
Temporary Land Disturbance at Structure	120 feet by 120 feet
Permanent Land Disturbance at Structure	60 feet by 60 feet
Temporary Land Disturbance at Each Wire Pull and Splice Site	200 feet by 200 feet
Permanent ROW Area (Entire Line)	15.3 acres
Permanent ROW Area (BLM Corridor Only)	10.9 acres
Estimated Temporary Construction Disturbance (Entire Line)	12.4 acres
Estimated Permanent Disturbance (Entire Line)	3 acres
Estimated Temporary Construction Disturbance (BLM Corridor Only)	8.8 acres
Estimated Permanent Disturbance (BLM Corridor Only)	2.1 acres
Source: Sempra Generation 2010	

2.1.4. Proposed Project Facilities

Under both Alternatives 1 and 2, Sempra Generation's proposed project includes construction and operation of temporary parking areas and laydown areas. Permanent ancillary facilities would not be required within the BLM-administered utility corridor.

Construction staging would occur within a 120-foot by 120-foot area around each proposed lattice structure connected by a temporary 16-foot-wide access road. Gen-tie dead-ends occurring at each turning point and splices would require a temporary construction workspace easement of 200 feet past the power pole, 200 feet wide, to allow the overhead cable to be tightened. Acreages of disturbance are displayed in Tables 2-1 and 2-3.

The gen-tie would interconnect CMS North with the existing Merchant Substation and the existing McCullough Substation. The common structures would be lattice towers no more than 150 feet high on drilled pier foundations. The span between supporting structures would be between 750 and 1,200 feet. There would be no parking or buildings within the BLM utility corridor.

A summary of the proposed gen-tie structures is provided in **Table 2.5, Proposed Gen-tie Structures**.

Table 2.5. Proposed Gen-tie Structures

Feature	Description
Type of Pole Structures	Lattice towers on drilled pier foundations
Structure Height	No more than 150 feet
Structure Foundation Depth	10 to 45 feet depending on the structural loads and soil conditions
Span Length	Approximately 750 to 1,200 feet depending on terrain
Number of Structures per Mile	5 to 7 depending on terrain
ROW Width	120 feet
Voltage	230 kV

2.1.4.1. Project Construction Schedule

Sempra Generation anticipates construction of the gen-tie lines would begin in the third quarter (Q) of 2012 and last approximately seven months, ending in Q2-2013. The gen-tie lines would be designed for a 40-year lifespan, and operation would commence as the first block of photovoltaic (PV) panels comes into service.

2.1.4.2. Site Preparation and Mobilization Activities

Site preparation consists of clearing, earthwork, and grading as required to construct the gen-tie lines. Existing roads would be used to the maximum extent possible with the exception of short access paths to the towers. These access paths would follow natural grade.

Gravel and aggregate materials would be imported when necessary from local off-site approved locations. Concrete would be imported from a local supplier by truck. All other areas would be left with the natural soil as the final surface.

On average, 10 to 20 construction and supervisory personnel would be required on site to construct the gen-tie lines. The construction schedule for the gen-tie lines would generally adhere to the following sequence: staking the structure locations and flagging the edge of the utility corridor, clearing access roads and staging areas, drilling and pouring foundations, installing structures and the overhead line, commissioning, cleanup, and site reclamation of the temporary work area.

Operation of the gen-tie lines would be managed, remotely monitored, and controlled by the staff of the existing Copper Mountain Solar I facility.

2.1.4.3. Waste and Hazardous Materials Management

Elements of the construction Storm Water Pollution Prevention Plan would address the handling and storage of fuels, lubricants, and hydraulic fluids expected to be used for construction equipment. Such equipment would be properly maintained to minimize leaks, and all vehicle maintenance would be performed off-site at an appropriate facility.

No hazardous material would be utilized in the operation of the gen-tie lines. The only possibility for spills during construction or operation would be from vehicles at the site. Vehicle fuelling would occur off site. The construction contractor would utilize standard best management practices (BMP) for spill kits, observe all fill operations, and perform vehicle inspections as required.

Handling, storage, and disposal of hazardous materials, hazardous wastes, and solid wastes would be conducted in conformance with federal and state regulations to prevent soil, groundwater, or

surface water contamination and associated adverse environmental effects or worker health and safety.

2.1.4.4. Surface Reclamation

The gen-tie lines would be operated for the foreseeable future. However, if the solar facility is decommissioned, the gen-tie lines, including support structures, would be removed, and the site would be restored to existing conditions. Sempra Generation would prepare a reclamation plan for BLM approval.

2.1.4.5. Standard Operating Procedures, Best Management Practices, and Environmental Protection Measures

The project would utilize an Enhanced Fugitive Dust Plan and other BMPs as described in **Appendix A**, Best Management Practices, to reduce the effects on the human and natural environment.

2.2. No Action Alternative

Under the No Action Alternative, the ROW would not be approved, and Sempra Generation would not be able to deliver power generated by the proposed solar energy facility. Without a gen-tie line, there would be no need for the solar energy facility, and the project would not be constructed.

2.3. Alternatives Considered but not Analyzed in Detail

No other reasonable alternative routes or modes were identified. Route selection was predicated upon the gen-tie line interconnecting to the nearest available transmission line with available capacity. The proposed routes represent routes with the minimum level of environmental impacts due to the proposed use of existing BLM-managed utility corridors. Alternatives 1 and 2 are also the shortest and most direct route to the point of interconnection.

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Chapter 3. Affected Environment

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3.1. Proposed Project General Setting

The proposed project site is in the Eldorado Valley in Clark County, Nevada, approximately 7.5 miles southwest of the City of Boulder City. Eldorado Valley is an internally drained basin bordered by the McCullough Range to the west, the River Mountains to the north, and the Eldorado Mountains and Opal Mountains to the east. The Valley is located in an alluvial fan in an area dominated by creosote bush and burro bush vegetation. The project area contains several unnamed desert washes flowing from west to southeast in the vicinity of the project area. These washes flow only during heavy precipitation events. Surrounding land is characterized primarily by power generation facilities, energy transmission infrastructure, transportation infrastructure, and open space.

3.1.1. Supplemental Authorities

Appendix 1 of the BLM's NEPA Handbook, H-1790-1 (BLM 2008a) identifies Supplemental Authorities that are subject to requirements specified by statute or executive order and must be considered in all BLM environmental documents (**Table 3-1**, Supplemental Authorities and Rationale for Detailed Analysis for the Proposed Action). Supplemental authorities that could be affected by the Proposed Action are further described in this EA.

Table 3.1. Supplemental Authorities and Rationale for Detailed Analysis for the Proposed Action

Elements ^a	Not Present ^b	Present/Not Affected ^b	Present/May Be Affected ^c	Rationale
Air Quality			X	Carried forward in Section 3.2.
Cultural Resources			X	Carried forward in Section 3.9.
Environmental Justice	X			Not present.
Farmlands (prime or unique)	X			Not present.
Fish Habitat	X			Not present.
Forests and Rangeland	X			Not present.
Floodplains	X			Not present.
Invasive, Nonnative, and Noxious Species			X	Carried forward in Section 3.8.
Livestock Grazing	X			Not present.
Migratory Birds			X	Carried forward in Section 3.7.
Native American Religious Concerns	X			Not present.
Special Status Species			X	Carried forward in Section 3.6.
Wastes, Hazardous or Solid		X		Not affected.
Water Resources (Surface/Ground)			X	Carried forward in Section 3.4.
Wetlands/Riparian Zones	X			Not present.
Wild and Scenic Rivers	X			Not present.

Wilderness abc	X			Not present.
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^aSee BLM Handbook H-1790-1 (BLM 2008a), Appendix 1, Supplemental Authorities to be Considered.

^bSupplemental authorities determined to be *not present* or *present/not affected* need not be carried forward or discussed further in the document.

^cSupplemental authorities determined to be *present/may be affected* must be carried forward in the document.

3.1.2. Resources Other Than Supplemental Authorities

Resources or uses that are not supplemental authorities as defined by BLM's Handbook H-1790-1 (BLM 2008a) are present in the project area. BLM specialists have evaluated the potential impact of the Proposed Action on these resources and documented their findings in **Table 3-2, Resources Other Than Supplemental Authorities**. Resources or uses that may be affected by the Proposed Action are further described in this EA.

Table 3.2. Resources Other Than Supplemental Authorities

Resource or Issue	Not Present	Present/Not Affected ^a	Present/May Be Affected ^b	Rationale
Visual Resources			X	Carried forward in Section 3.10.
Recreation			X	Carried forward in Section 3.11.
Land Use			X	Carried forward in Section 3.13.
Fuels/Fire Management			X	Carried forward in Section 3.8.
Geology and Minerals		X		Not affected.
Noise			X	Carried forward in Section 3.12.
Socioeconomic Resources			X	Carried forward in Section 3.14.
Soils			X	Carried forward in Section 3.3.
Vegetation			X	Carried forward in Section 3.8.
Wildlife			X	Carried forward in Section 3.5.
Wild Horses and Burros	X			Not present.
Special Status Species– BLM Sensitive Species			X	Carried forward in Section 3.6.
Paleontological Resources	X			Not present. Standard mitigation measures would be implemented in the event unanticipated paleontological resources are unearthed during construction.
ab				

^aNot present. Standard mitigation measures would be implemented in the event unanticipated paleontological resources are unearthed during construction.

^bResources or uses determined to be *present/may be affected* must be carried forward in the document.

3.1.3. Resources or Uses Present and Brought Forward for Analysis (All Supplemental Authorities and Resources Other Than Supplemental Authorities)

The following resources are present in the project area, may be affected by the Proposed Action, and are carried forward for analysis:

- Air Quality
- Geology, Minerals, and Soil
- Water Resources
- Special Status Species
- Migratory Birds
- Wildlife
- Vegetation and Invasive Species/Noxious Weeds
- Cultural Resources
- Visual Resources
- Recreation
- Noise
- Land Use
- Socioeconomics

3.2. Air Quality and Climate

3.2.1. Affected Environment

Air Quality

Ambient Air Quality Standards

The Clean Air Act (CAA) established the principal framework for national, state, and local efforts to protect air quality in the US (42 USC §§ 7401–7642). Under the CAA, the US Environmental Protection Agency (EPA) has set time-averaged standards known as National Ambient Air Quality Standards for six air pollutants considered to be key indicators of air quality: carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, lead, and two categories of particulate matter (particulate matter with an aerodynamic diameter of 10 microns or less [PM10] and particulate matter with an aerodynamic diameter of 2.5 microns or less [PM2.5]).

*Chapter 3 Affected Environment
Resources or Uses Present and Brought Forward
for Analysis (All Supplemental Authorities and
Resources Other Than Supplemental Authorities)*

The standards are two tiered and include primary and secondary standards. Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect the environment, including protection against decreased visibility and damage to animals, crops, vegetation, and structures. Averaging periods vary by pollutant based on potential health and environmental effects of each pollutant. States may set their own ambient air quality standards, but these standards must be at least as stringent as the national standards. The State of Nevada has adopted most of the National Ambient Air Quality Standards to regulate air pollution in the state. The state has adopted a more stringent carbon monoxide standard for areas above 5,000 feet above mean sea level, a more stringent sulfur dioxide standard, and a standard for hydrogen sulfide, for which there is no national standard (Nevada Administrative Code 445B.22097).

Regional Air Quality Conditions

The geographic areas, or airsheds, for National Ambient Air Quality Standards compliance are defined by hydrographic basins. The proposed project is located in the Eldorado Valley, Clark County, Nevada, which has been designated Hydrographic Basin 167. The Eldorado Valley airshed is designated non-attainment for the 8-hour ozone standard and unclassified for the other criteria pollutants per the US Environmental Protection Agency's Region 9 Air Quality Maps.

Currently, Clark County meets the PM_{2.5}, NO₂, and CO NAAQS, and is unclassifiable for Pb and SO₂. The County is developing a maintenance plan for PM₁₀. The Las Vegas Valley achieved attainment of the 24-Hour PM₁₀ Standard on December 31, 2006, and EPA has issued a "Finding of Attainment". Determination of the classification for O₃ will follow EPA publication of the new O₃ NAAQS in late 2010.

The Clark County Department of Air Quality and Environmental Management is responsible for monitoring air, developing proper control measures, and enforcing those measures. The Clark County Department of Air Quality and Environmental Management regulates all stationary and non-vehicular sources, including construction sources, of fugitive dust. According to Section 17 of Clark County's Air Quality Regulations, a plan-specific permit is required for construction activities involving surface disturbances one-quarter acre or greater, such as grading and trenching. This permit would include conditions requiring control of fugitive dust emissions, as defined in Section 41 of the regulations.

Existing sources of air pollutants in the project area include the Eldorado Energy power plant, the Nevada Solar One (concentrated solar technology) power plant, the University of Nevada, Las Vegas, Solar Technology Center, windblown dust, fugitive dust from off-road vehicle use, and emissions from vehicles traveling on US Highway 95.

Regulatory Considerations

Section 176(c) of the CAA requires federal agencies to ensure that their proposed actions are consistent with the CAA. The EPA has promulgated rules establishing conformity analysis procedures for transportation-related actions and for other general federal agency actions, in nonattainment areas. The EPA general conformity rule requires preparation of a formal conformity determination document, namely a State Implementation Plan, for federal agency actions that are undertaken, approved, or funded in federal nonattainment or maintenance areas when the total net change in direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. Because the proposed action would occur in a designated

ozone (O₃) nonattainment area, construction and operation activities will need to comply with CAA conformity guidelines.

Climate

Climate comprises data which includes temperature, humidity, atmospheric pressure, wind, rainfall, atmospheric particle count and other meteorological essential information in a given region over long periods of time. Climate can be contrasted against weather, which represents the present condition of these elements and their variations over shorter periods of time. Essentially, climate is weather averaged over a long period of time.

The project area is situated in the southern most portion of the Mojave Desert and is characterized by an arid climate, typical for the southwestern region of the United States. The Sierra Nevada of California and the Spring Mountains to the west act as effective barriers to moisture moving eastward from the Pacific Ocean.

Four seasons are well defined in the region. Summers are typical for the southwest desert and are characterized by daily maximum temperatures exceeding 100°F with low temperatures in the 70s. Summer heat is moderately to extremely low in relative humidity, and winters are mild and pleasant with daytime temperature averages of 60°F. Spring and fall seasons are generally considered ideal, however sharp temperature changes often occur between sunrise and sunset during these months.

The average annual temperature at McCarran International Airport is 67.1°F. January is the coldest month (avg. 45.5°F) and July is on record as the warmest month (avg. 91.1°F). Recorded extreme temperatures have been recorded as low as 8°F in the month of January and 116°F in July.

Average wind speed is approximately 9.3 miles per hour (mph). Winds blow predominately from the southwest, except that west-southwesterly and westerly winds dominate from October to January.

Average annual relative humidity at McCarren International Airport ranges from 21% to 27% during daylight hours and from 32% to 40% during the nighttime. Annual average precipitation ranges from ≥ 0.01 in. (McCarren Airport) to about 4.13 in. During 2 weeks, almost every summer, warm, moist air predominates in the area and causes scattered thunderstorms, occasionally quite severe, causing some flooding. Snow rarely falls on the desert floor, but is does fall regularly in the higher elevations.

Tornadoes are rare in the region but have been recorded as occurring in every month of the year. All of the 13 tornadoes reported in Southern Nevada, since 1950, have been very weak, at most F1 of the Fujita tornado scale (National Oceanic and Atmospheric Administration [NOAA], 2004).

Greenhouse Gas

Greenhouse gases are gases in the Earth's atmosphere that are opaque to short-wave incoming solar radiation, but absorb long-wave infrared radiation re-emitted from the Earth's surface, trapping heat. Over time, the amount of energy sent from the sun to the Earth's surface should be approximately the same as the amount of energy radiated back into space, leaving the temperature of the Earth's surface roughly constant. Some studies, however, indicate that the Earth's climate has warmed over the past century and that human activity affecting the atmosphere may be a contributing factor.

Gases exhibiting greenhouse properties come from both natural sources and anthropogenic activity. Water vapor, carbon dioxide, methane, and nitrous oxide are examples of greenhouse gases that have both natural and manmade sources, while other greenhouse gases such as chlorofluorocarbons are exclusively manmade. In the US, greenhouse gas emissions come mostly from energy use. Such emissions result from combustion of fossil fuels used for electricity generation, transportation, industry, heating, and other needs. Energy-related carbon dioxide emissions represent 82 percent of total manmade greenhouse gas emissions in the US (US Energy Information Administration 2009).

The Final Mandatory Reporting of Greenhouse Gases Rule issued by the EPA on September 22, 2009, requires suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions to submit annual reports to the EPA. In 2007, the Nevada Legislature passed a requirement that electrical generating power plants in the state with a maximum design output of five MW or greater must report their greenhouse gas emissions; however, units that use renewable energy sources are specifically exempted from the reporting requirement (NDEP, Bureau of Air Quality Planning 2010).

3.3. Geology, Minerals, and Soils

3.3.1. Affected Environment

The Eldorado Valley is an internally drained basin bordered by the McCullough Range to the west, the River Mountains to the north, and the Eldorado Mountains and Opal Mountains to the east. The Valley is located in an alluvial fan and consists of alluvial, aeolian, and playa deposits which are surrounded by steeply sloping alluvial aprons of gravel and sand deposits (US Department of Agriculture, Natural Resources Conservation Service 2006). The proposed project area has very deep soil depths; sediments are up to 4,000 feet thick in parts of the Valley. Soil textures are very gravelly and loamy sand of the Tonopah-Arizo association. These soils are fan remnants and aprons deposited from the eroding adjacent mountain ranges (US Department of Energy 2009). As a result, the project area does not contain any paleological deposits.

Biological soil crusts are formed by living organisms and their by-products, creating a crust of soil particles bound together by organic materials. They are commonly found in semiarid and arid environments. Crusts are well adapted to severe growing conditions, but poorly adapted to compressional disturbances. Recovery of biological crusts may take decades to hundreds of years. Therefore, preventing degradation by minimizing disturbance is important. The presence of biological soil crusts in the proposed project area has not been documented; locations that may experience impacts from compaction would be examined for the existence of biological soil crusts prior to site development.

Eldorado Valley is in Seismic Zone 2B, defined by the Uniform Building code as having a moderate potential for damage by seismic hazards associated with known faults. The nearest potentially active fault is the Black Hills Fault, located adjacent to the northwest boundary of the solar field site and running northeast away from the project site. The Black Hills Fault has not faulted since the Holocene era 5,000 years ago (US Department of Energy 2009).

Mineral resources in the area include a fair potential for sand and gravel. Hard rock mining for silver, gold, copper, lead, and zinc has occurred in the past in the surrounding Opal Mountains,

though there is no known active mining in the proposed project area (US Department of Energy 2009).

3.4. Water Resources

3.4.1. Affected Environment

The Clark County Regional Flood Control District (CCRFCFCD) indicates the presence of several unnamed desert washes flowing from west to southeast in the vicinity of the project area. These washes flow only during heavy precipitation events. Two washes cross portions of the project area: one at the southern portion of the solar field and the other near the point where the gen-tie routes in Alternative 1 and Alternative 2 diverge, approximately one mile southwest of the proposed solar field (CCRFCFCD 2010).

No Federal Emergency Management Agency (FEMA) mapped floodplains occur within the developed areas of the proposed project. Two small 100-year FEMA floodplains are located to the west and southwest of the southern-most mile of the Alternative 2 gen-tie route. The nearer of these floodplains is approximately 160 feet from the utility corridor boundary. The solar field site is located approximately 1 mile northwest of a large dry lakebed that is mapped as a 100-year floodplain (CCRFCFCD 2010).

The US Army Corps of Engineers has determined that there are no jurisdictional wetlands on the project site. The dry lakebed adjacent to the project site was determined to be an intrastate isolated water with no apparent interstate or foreign commerce connection, and the ephemeral water in this lakebed would not be regulated by the Corps of Engineers (**Appendix C**, Agency Correspondence).

3.5. Wildlife

3.5.1. Affected Environment

The overall project area may provide forage, cover, roosting, and nesting habitat for a variety of bird species. Resident and migratory birds may use the resources during the winter, migratory, and breeding seasons. Common raven (*Corvus corax*), black-throated sparrow (*Amphispiza bilineata*), horned lark (*Eremophila alpestris*), red-tailed hawk (*Buteo jamaicensis*), lesser nighthawk (*Chordeiles minor*), common poorwill (*Phalaenoptilus nuttallii*), white-crowned sparrow (*Zonotrichia leucophrys*), and ash-throated flycatcher (*Myiarchus cinerascens*) were observed during preliminary project area surveys. Other species with potential to occur in the area include sage sparrow (*Amphispiza belli*) and mourning dove (*Zenaida macroura*). Three species of mammals were observed during preliminary site surveys: black-tailed jackrabbit (*Lepus californicus*), antelope ground squirrel (*Ammospermophilus leucurus*), and desert kit fox (*Vulpes macrotis arsipus*). The project area is also likely to support desert woodrat (*Neotoma lepida*), and coyote (*Canis latrans*). Reptiles are common in the area. Species common to the area in site surveys include western whiptail (*Cnemidophorus tigris*), zebra-tailed lizard (*Callisaurus draconoides*), and side-blotched lizard (*Uta stansburiana*). Full details of wildlife observed in project area surveys are included in **Appendix B**.

3.6. Special Status Species

3.6.1. Affected Environment

For the purpose of this document, special status species include those species listed as federally threatened, endangered, or candidate species under the Endangered Species Act of 1973, as amended, designated sensitive by the BLM (Manual 6840.06 C), or protected by the State of Nevada under Nevada Revised Statutes and Nevada Administrative Code Sections 501, 503 and 527.

Section 7 Consultation for the proposed project has been initiated through the preparation of a biological assessment submitted to the USFWS. Full details of project impacts on federally listed species will be disclosed in the project Biological Opinion.

Management of federally listed species on non-federal land in the project area is guided by the Clark County Multiple Species Habitat Conservation Plan. Clark County implemented its plan in 1995. This plan requires measures that pro-actively conserve species through an ecosystems approach. It provides for conservation of 78 species of plants and animals and their habitats, including the federally listed desert tortoise, through establishing lands for conservation and lands approved for development. The Clark County multiple species habitat conservation plan's Section 10(a)(1)(B) incidental take permit covers all non-Federal (private, municipal, State) lands within Clark County.

The potential for special status species occurrence within the entire project area was determined by utilizing reviews of existing literature as well as comprehensive biological surveys conducted in June 2010 and April 2011. No special status plants were found during the surveys. The only federally listed wildlife species known or likely to occur in the vicinity of the project area is the threatened desert tortoise. Five additional wildlife species with BLM or state special status were observed or are likely to occur in the project area. Details of the survey results are provided below. Full results, including information on species that were investigated and found to have a low potential for occurrence in the project area, are provided in **Appendix B**.

Desert tortoise (*Gopherus agassizii*): The Mojave population of the desert tortoise is listed as threatened under the Endangered Species Act and is a state protected species and BLM sensitive species. The project area is within suitable habitat for the desert tortoise and five live tortoises and forty-two burrows were observed during project area surveys in 2010 and 2011. Surveys encompassed the proposed gen-tie lines as well as the proposed solar field. Based on the USFWS density formula, the project area, including the solar field, is estimated to support ten adult desert tortoises and have an overall tortoise density of approximately 2.3 tortoises per square mile. The project area is located northwest of the Piute-Eldorado Critical Habitat Unit for the desert tortoise.

Burrowing owl (*Athene cunicularia*): The burrowing owl is a state protected species and BLM sensitive species, and a bird of conservation concern under the Migratory Bird Treaty Act of 1918 (MBTA). It is historically known to occur in open, dry grasslands, and desert habitats often associated with burrowing animals. This species typically nests in burrows or man made structure such as culverts. Active sign of burrowing owls was observed during project area surveys. The species is likely resident in low numbers.

Prairie falcon (*Falco mexicanus*): The prairie falcon is a BLM sensitive species, state protected species, and a bird of conservation concern under the MBTA. This large falcon typically builds

nest sites on cliffs. In the desert they are found in most vegetation types, although sparse vegetation provides the best foraging habitat. The species may forage in the project area; one individual was observed in flight during site surveys. Suitable nesting habitat is located approximately three miles west of the project area in the McCullough Range.

Loggerhead shrike (*Lanius ludovicianus*): The loggerhead shrike is a BLM sensitive species and a state protected species. It typically is found in open habitats with scattered shrubs, trees, posts, fences, or other perches. The loggerhead shrike is a possible resident in low numbers; one individual was observed during project area surveys.

Brewer's sparrow (*Spizella breweri*): Brewer's sparrow is a state protected species. This species typically breeds in shrub habitats, such as sagebrush habitats and in higher valleys of the Mojave Desert. It is somewhat common in open desert habitats during the winter. One individual was observed in the project area. The species is a possible resident in low numbers.

Desert kit fox (*Vulpes macrotis*): A state protected species, desert kit foxes typically dig burrows and dens in open, level areas with loose-textured, sandy and loamy soils. These burrows may also be used by other species including burrowing owls. Fifteen burrow complexes with recent and historical sign were observed in the project area surveys.

3.7. Migratory Birds

3.7.1. Affected Environment

On January 11, 2001, President Clinton signed Executive Order 13186 placing emphasis on the conservation and management of migratory birds. Migratory birds are protected under the Migratory Bird Treaty Act of 1918, and the Executive Order addresses the responsibilities of federal agencies to protect migratory birds by taking actions to implement the MBTA. BLM management for migratory bird species on BLM-administered lands is based on Instruction Memorandum No. 2008-050 (BLM 2007b). Based on this Instruction Memorandum, migratory bird species of conservation concern include "Species of Conservation Concern" and "Game Birds below Desired Conditions." These lists were updated in 2008 (USFWS 2008).

There is one vegetation community found within the Project Area, Mojave creosote bush scrub, which supports life requisites of a variety of migratory birds. This vegetation community is described in detail under Section 3.8, Vegetation and Invasive Species/Noxious Weeds.

Four migratory bird Species of Concern (burrowing owl, prairie falcon, golden eagle and LeConte's thrasher [*Toxostoma lecontei*]) and one Game Birds of Concern (mourning dove [*Zenaidura macroura*]) have the potential to occur in the project area. Details for these species are included in the Biological Survey Report (**Appendix B**).

Golden Eagle

The Bald and Golden Eagle Protection Act of 1940, as amended in 1959, 1962, 1972, and 1978, prohibits the take or possession of bald (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) with limited exceptions. *Take* as defined in the Eagle Act, includes "to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." *Disturb* means "to agitate or bother a bald or golden eagle to a degree that causes or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity,

by substantially interfering with normal breeding, feeding or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding or sheltering behavior.”

‘Important eagle-use area’ is defined in the Bald and Golden Eagle Protection Act of 1940, as amended, as an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles.

The BLM requires consideration and NEPA analysis of golden eagles and their habitat for all renewable energy projects (BLM Instruction Memorandum No. 2010-156 [BLM 2010b]). Nesting habitat for the golden eagle does not exist directly on site, but may be found in the McCullough Range and the River Mountains, west and north of the project area respectively. Golden eagles may forage within the project area.

3.8. Vegetation and Invasive Species/Noxious Weeds

3.8.1. Affected Environment

Preliminary biological surveys have indicated that Mojave creosote bush scrub is the dominant vegetative community throughout the overall site. The vegetation alliance is the *Larrea tridentata*-*Ambrosia dumosa* Shrubland Alliance (Nevada Natural Heritage Program 2011), dominated by creosote bush (*Larrea tridentata*) and burro brush (*Ambrosia dumosa*). It also includes Fremont’s indigo bush (*Psoralea fremontii*), Schott’s indigo bush (*P. schottii*), littleleaf rhatany (*Krameria erecta*), and paperbag bush (*Salazaria mexicana*). A complete list of vegetation observed in preliminary site surveys is included in **Appendix B**.

Cactus and yucca are considered a commodity and government property. As such, they are regulated under the BLM forestry program. The number of cacti and yucca species on site was compiled during site surveys in 2010 and 2011. No yuccas were seen, but nine species of cacti were present, including the following:

- Acanthocarpa (*Cylindropuntia acanthocarpa* var. *coloradensis*),
- Golden cholla (*Cylindropuntia echinocarpa*),
- Barrel cactus (*Ferocactus cylindraceus* var. *cylindraceus*),
- Teddybear cholla (*Cylindropuntia bigloveii*),
- Pencil cholla (*Cylindropuntia ramossisima*),
- Cottontop (*Echinocactus polycephalus*),
- Common fishhook cactus (*Mammillaria tetrancistra*),
- Johnson’s fishhook cactus (*Sclerocactus johnsonii*), and
- Beavertail (*Cylindropuntia basilaris* ssp. *basilaris*).

The complete results of the survey are presented in Appendix B.

Invasive plant species directives are defined under various federal and state laws including the following:

- Executive Order 13112 – Invasive Species;
- Federal Land Policy and Management Act (FLPMA) of 1976, as amended;
- Public Rangelands Improvement Act of 1976;
- Federal Noxious Weed Act of 1974;
- Carson-Foley Act of 1968;
- Plant Protection Act of 2000;
- Noxious Weed Control Act of 2004;
- Federal Insecticide, Fungicide and Rodenticide Act;
- Executive Order 13112, Invasive Species; and
- Nevada Revised Statute Chapter 555- Control of Insects, Pests and Noxious Weeds.

One invasive plant species designated by the Nevada Department of Agriculture as a Category B weed species was found within the project area: Sahara mustard (*Brassica tournefortii*). Category B species are defined as “weeds established in scattered populations in some counties of the state; actively excluded where possible, actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur.” Other invasive species found within the project area included Mediterranean grass (*Schismus barbatus*), cheat grass (*Bromus tectorum*), red brome (*Bromus madritensis* ssp. *rubens*), and Russian thistle (*Salsola tragus*). These species are recognized for their widespread distribution and are typically not considered to be feasibly controlled on a large scale, however, local control measures may be needed to control wildfire risk.

3.9. Cultural Resources

3.9.1. Affected Environment

Regulatory Framework

Section 106 of the National Historic Preservation Act, as amended (16 USC 40 et seq.), requires federal agencies to take into account the effects of their actions on properties listed or eligible for listing on the National Register of Historic Places (NRHP). The National Park Service defines archaeological and historic resources as “the physical evidences of past human activity, including evidences of the effects of that activity on the environment. What makes a cultural resource significant is its identity, age, location, and context in conjunction with its capacity to reveal information through the investigatory research designs, methods, and techniques used by archeologists.” Ethnographic resources are defined as any “site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it” (National Park Service 1998).

The BLM's Proposed Action is subject to compliance with Section 106 of the NHPA as it is considered a federal undertaking. Section 106 requires federal agencies to consider the effects of their actions on historic properties and to consult with the State Historic Preservation Office.

Area of Potential Effects

The area of potential effects (APE) is defined in 36 CFR 800.16(d) as the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking. The APE for the CMS North Project is the 1,400-acre solar field, and 18.1 miles of gen-tie route from all alternatives.

The project's APE (2,500 acres) was inventoried and documented in BLM Cultural Resource Report No. 5-2677. Four prehistoric sites and one historic site have been recorded within the area of potential effect for this project. Three of the sites are situated within the transmission line corridor area, and one is located just outside the boundary of the solar panel field area. At this time, sites 26Ck4956 and 26Ck4957 are determined to be non-eligible for listing on the National Register of Historic Places. Three of the prehistoric sites (26Ck9443, 26Ck9445, and 26Ck9446) that are within the proposed utility corridors are determined by BLM to be eligible for listing. These findings will be reviewed by the Nevada State Historic Preservation Office for concurrence. Tribal consultation has been initiated for the proposed project, and all mitigation activity would need to be completed prior to any BLM notice to proceed.

3.10. Visual Resources

3.10.1. Affected Environment

Regional views consist of mountain ranges arranged in a north-south orientation, separated by broad valleys. Dominant visual features in the project area include the McCullough Range and existing energy infrastructure. Views from the potential gen-tie line routes include undeveloped desert to the north, southeast, and west; undeveloped desert and scattered commercial and industrial buildings to the east and northeast; and undeveloped desert and power facilities to the south. Under the proposed action and Alternative 2, existing transmission lines run parallel to a portion of or a majority of the proposed gen-tie routes. The CMS Links similarly run parallel to existing transmission lines.

Unpaved roads cross the project area, mainly accessing energy generation infrastructure and transmission lines. Traffic from US Highway 95, approximately 2.5 miles south and east of the project site, is visible from the project site. The physical landscape associated with the Eldorado Valley is common to the region, but because of the amount of industrial development, the scenic quality has been altered.

The landscape surrounding the gen-tie route is similar to that found throughout the project area. Depending on the alternative selected the gen-tie lines would cross sparsely vegetated desert or run alongside existing roads or transmission lines. Views of the potential gen-tie lines would be available from area roadways; no rural residences or developed recreation areas are near the gen-tie routes.

3.11. Recreation

3.11.1. Affected Environment

The project site receives moderate recreational use and there are a few off-highway vehicle (OHV) routes traversing the solar field site. Disturbance is evident from OHVs along the utility corridors. Adjacent Boulder City lands are utilized primarily for energy development, though the Boulder City Conservation Easement (BCCE) allows casual recreational uses, including hiking, sightseeing, and driving for pleasure at speeds below 25 miles per hour. The BCCE overlaps portions of the gen-tie routes under both alternatives.

The project area is located within NDOW Hunt Unit 263 (NDOW 2010b). Big game hunting in this Hunt Unit consists of desert bighorn sheep (*Ovis canadensis nelsoni*), which are predominantly found between McCullough Pass and Black Mountain.

3.12. Noise

3.12.1. Affected Environment

The proposed project site is located in a rural area and experiences low to moderate noise levels. Sources of noise include wind, weather, and wildlife; the existing power generating stations; traffic on US Highway 95; and occasional off-road vehicles. Ambient sound levels typical of rural areas range between 30 and 40 dBA (dBA represents A-weighted decibels, which measure sound in a manner that emphasizes the response of the human ear) (EPA 1978).

Sensitive noise receptors are generally considered to be homes, hospitals, schools, libraries, parks, and recreational areas. There are no sensitive receptors within one mile of the project site.

The Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978 (42 USC §§ 4901-4918), delegates to the states the authority to regulate environmental noise. It also directs government agencies to comply with local community noise statutes and regulations, and to conduct their programs to promote an environment free of any noise that could jeopardize public health or welfare.

The Boulder City Municipal Code governs construction-related noise in the Energy Zone.

3.13. Land Use

3.13.1. Affected Environment

The proposed facility is located in a sparsely populated area of Clark County, Nevada, approximately 7 miles southwest of Boulder City. Surrounding land is characterized primarily by power generation facilities, energy transmission infrastructure, transportation infrastructure, and open space. The BLM-managed utility corridors where the gen-tie lines would be mostly located, contain several ROWs for transmission lines, pipelines, and related facilities, which is consistent with the Management Objective RW-1 in the Las Vegas RMP (BLM 1998). Within the last 12 months, several private parties have applied to construct new gen-tie lines within the corridors.

The solar field site is located within the Boulder City's expanded Energy Zone in the Black Hills Solar Development Area, approximately 3.3 miles north of the original Boulder City Energy Zone.

The gen-tie power line routes would follow existing roads and transmission line routes where possible, traversing a flat desert landscape typical of the area. The route would originate at the proposed solar field in the northern part of the project area and terminate at the existing Merchant Substation and McCullough Substation. The CMS Link would originate at the Merchant Substation and terminate at the existing Eldorado Substation. Depending on the alternative selected, the gen-tie routes would be contained partially within BLM-administered utility corridors. Under the Proposed Alternative, a portion of the gen-tie would cross lands owned by Boulder City. The gen-tie line would be an allowable use under Boulder City zoning designations.

3.14. Socioeconomics

3.14.1. Affected Environment

The region of influence (ROI) for the proposed action is Clark County, Nevada. Selected socioeconomic indicators for the ROI and comparative data for the state are presented in Table 3-8.

Table 3.3. Selected Socioeconomic Indicators for the Region of Influence and State of Nevada^a

Geo-graphic Area	Population (2010)	Population (2000)	Labor Force	Housing Units	Owner-Occupied Housing Units (percent)	Housing Vacancy Rate (percent)	Median Home Price
Clark County	1,951,269	1,375,765	957,102	775,520	59.0	13.5	\$ 278,500
Nevada	2,700,551	1,998,260	1,329,085	1,089,982	60.7	13.4	\$ 275,300
Source: US Census Bureau 2000, 2009							
^a							

^a2009 data unless otherwise noted

Chapter 4. Environmental Consequences

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4.1. Air Quality and Climate

4.1.1. Environmental Consequences

Alternative 1

Construction and operation of the gen-tie lines will require compliance with all applicable federal, state, and local air quality laws and regulations. The project's impacts to air quality are anticipated to be temporary and short-term in nature. Increased emission of PM10 and PM2.5 would likely occur as a result of the soil disturbance associated with vegetation removal, construction activities, and movement of construction equipment. Exact measures would be developed as part of the Enhanced Fugitive Dust Plan, but examples of dust control measures that could be employed include the following:

- Phase work to minimize the amount of disturbed surface area at any one time;
- Apply water to all active construction and site preparation work areas at least twice daily and more often during windy periods;
- Apply water to demolition debris and surrounding area immediately following demolition activity;
- Suspend dust-generating operations during periods of excessive winds (60-minute average wind speed greater than 25 miles per hour);
- Cover all hauling trucks or maintain at least two feet of freeboard on all loads;
- Install trackout control devices at paved access points to control fugitive dust from leaving the project site via trucks and motor vehicles;
- Apply water or on all unpaved access roads and staging areas;
- Sweep paved access roads with water sweepers; and
- Enclose or securely cover exposed stockpiles.

Alternative 2

The impacts under Alternative 2 would be the same as those described under Alternative 1.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed, and there would be no change in air or climate resource conditions at the project site.

4.1.2. Connected Action

Impacts from construction of the solar field would be similar to those described under Alternative 1, but would occur over a larger area. Operation of the solar field would result in no emissions of criteria air pollutants or greenhouse gases from operation of the solar generating equipment itself, including the solar PV panels, inverters, switchgear, transformers, substation, and conductors.

4.2. Geology, Minerals, and Soils

4.2.1. Environmental Consequences

Alternative 1

A limited potential for erosion exists under Alternative 1. Before the start of construction, Sempra Generation will obtain a dust control permit from the Clark County Department of Air Quality and Environmental Management as required (Clark County Department of Air Quality and Environmental Management 2003). Sempra Generation would also develop an Enhanced Fugitive Dust Plan with mitigation measures to reduce the potential for fugitive dust. Potential mitigation measures include, but are not limited to, the following: watering the site, applying soil stabilizers, installing a construction entrance with track-out control devices, and the stabilization of disturbed surfaces after construction is completed.

Should biological soil crusts be detected in pre-construction surveys, appropriate measures would be taken to minimize disturbance of soil crusts. Suggested measures include but are not limited to the following:

- Maintain the optimum amount of live vegetation, litter, and biological crust relative to the site potential in order to maintain the content of organic matter and soil structure and control erosion.
- Defer disturbance during periods when biological crusts are most susceptible to physical disturbances, i.e. when soil surface is very wet or ponded.
- Control the establishment and spread of invasive annual plants that can increase risk of wildfire, which may negatively impact biological soil crusts.

Alternative 2

The impacts described under Alternative 1 would be the same as under Alternative 2.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed, and there would be no change in geology, minerals, or soils resource conditions at the project site.

4.2.2. Connected Action

The types of impacts associated with the connected action would be similar to those described under Alternative 1, but would occur over a larger area. As described under Alternative 1, all required permits would be obtained and an Enhanced Fugitive Dust Plan with mitigation measures would be developed to minimize impacts.

4.3. Water Resources

4.3.1. Environmental Consequences

Alternative 1

Water for construction of the gen-tie and solar field would be obtained from the existing water hydrant located approximately 1 mile north of the project site. Delivery from the hydrant to the project site would be by truck or, alternatively, a temporary water line would be installed delivering water from this hydrant to the plant site during construction. This temporary line would be installed along road shoulders of existing roads. This water hydrant is connected to the existing water line that serves the Eldorado Valley.

Water for operation would be obtained either from the existing hydrant, using truck delivery to an on-site storage tank, or by installing a small (2-inch diameter or less) line between the plant and the nearest water distribution pipeline, located along Highway 95. Approximately 600 acre-feet would be required during construction and 30 acre-feet annually for operation.

Separate Storm Water Pollution Prevention Plans would be prepared and implemented to address construction activities for the gen-tie lines and the solar field. Best management practices (BMPs) will be adapted to site conditions and employed to avoid soil erosion and off-site impacts during construction (see **Appendix A**).

The one wash that would be crossed by the gen-tie line route would not be impacted, as Sempra Generation would avoid it when configuring the transmission pole locations.

No actions are proposed within FEMA-designated floodplains; therefore, development would have no impact on the 100-year floodplains.

Alternative 2

The impacts to water resources under Alternative 2 would be the same as described under Alternative 1.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed, and there would be no change in water resource conditions at the site.

4.3.2. Connected Action

Channels and berms would be constructed along the solar field perimeter boundary to manage off-site runoff around the site. Proposed channels would empty into spreader basins, where off-site flow would be discharged at the historic drainage path. A large off-site retention basin would also be graded on the northwest side of the property to collect off-site flows and prevent them from entering the site. Site drainage channels and retention basins would be constructed utilizing BMPs to minimize erosion and potential impacts to wildlife (**Appendix A**). Drywells would be installed in both the retention and spreader basins to ensure that storm water percolates within 72 hours as required by Clark County.

Water would be used during grading to control dust and to achieve proper moisture content in the soil being graded. Water for dust suppression would be provided from the existing nearby hydrant located approximately 1 mile from the site or, alternatively, a temporary water line would be installed delivering water from this hydrant to the plant site during construction. This temporary line would be installed along road shoulders of existing roads. This water hydrant is connected to the existing water line that serves the Eldorado Valley.

4.4. Wildlife

4.4.1. Environmental Consequences

Alternative 1

Direct impacts on wildlife include loss of habitat and the potential for killing or maiming of ground-dwelling animals during construction. In addition, noise and human presence during construction activities could temporarily deter wildlife from using the project area. Construction of the proposed gen-tie lines would result in temporary disturbance of 50 acres of habitat for wildlife, including approximately 29 acres within the BLM-managed utility corridor. In addition, constructing the CMS Link under Alternative 1 would cause a temporary habitat disturbance of approximately 6.7 acres, including 3 acres in the BLM-managed utility corridor.

Increased human activity along the gen-tie routes could introduce and spread invasive vegetation and increase the risk of wildfire, causing the loss or degradation of wildlife habitat.

Wildlife species may also be subject to increased predation as result of construction activities. Predators such as coyotes and ravens are attracted to trash and litter that may be found at construction sites.

Best management practices for wildlife (see **Appendix A**) including, but not limited to, measures to control litter, set speed limits for vehicles, and provide worker education, would lessen impacts to wildlife species.

The area below the gen-tie lines would be maintained clear of vegetation to allow access for inspection and therefore would not provide suitable habitat for wildlife. Approximately eight acres would be permanently disturbed within the BLM-managed utility corridor. In addition, the proposed CMS Link would include a permanent loss of approximately 0.7 acres of habitat in the BLM-managed utility corridor.

The gen-tie lattice towers would provide perching locations for raptors and ravens. Sempra Generation would implement a raven management plan to reduce impacts on desert tortoise (see **Appendix D**). Measures would include incorporating design features on the towers to discourage perching and nesting and regularly removing any nests on the towers.

Alternative 2

Construction-related impacts would be similar to those described under Alternative 1. There would be approximately 44 acres of temporary habitat disturbance in the BLM-managed utility corridor. For the CMS Link there would be approximately 8.8 acres of temporary habitat disturbance in the BLM-managed utility corridor.

Impacts during project operation would be similar to those described under Alternative 1. There would be approximately 13 acres of permanent habitat loss in the BLM-managed utility corridor. For the CMS Link there would be approximately 2.1 acres of permanent habitat loss in the BLM-managed utility corridor.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed and there would be no change in wildlife resource conditions at the project site.

4.4.2. Connected Action

Impacts from construction and operation would be similar to those described under Alternative 1, but would occur over a larger area. For example, the solar field site would be stripped of vegetation and fenced to exclude tortoises and other wildlife. As a result, approximately 1,400 acres would be unavailable as ground-dwelling wildlife habitat for the duration of solar field operation.

Potential impacts on private land also include the following: disturbance of wildlife by equipment noise and human activity at the project site during site operation; disturbance due to site maintenance including washing solar panels and vegetation control during site operation; limited potential for wildlife exposure to contaminants; and limited potential for bird mortality from collisions with project facilities.

4.5. Special Status Species

4.5.1. Environmental Consequences

Alternative 1

Direct impacts to special status species are similar to those described for wildlife (see Section 3.5). Impacts include the potential to injure or kill individuals during project construction and vegetation removal. Construction of the proposed gen-tie lines would result in temporary disturbance of 50 acres of habitat for special status species including approximately 29 acres within the BLM-managed utility corridor. In addition, constructing the CMS Link under Alternative 1 would necessitate a temporary disturbance of approximately 6.7 acres, with 3 acres in the BLM-managed utility corridor of special status species habitat.

Impacts on the prairie falcon are likely to be minimal due to lack of breeding habitat in the project area and abundance of foraging habitat throughout the region. In addition, Brewer's sparrow and loggerhead shrike are likely found in limited numbers in the project area, and mitigation measures for migratory birds would provide protection for breeding habitat.

The project area would be surveyed for desert tortoise and any individuals would be relocated prior to project construction utilizing USFWS guidelines, thereby limiting the impact on desert tortoise. A limited potential for direct impacts remains if any individuals are not identified and relocated, and from the stress of relocation for any animals moved off site could cause physiological effects that could affect tortoise health or behavior. Additional minimization measures will be identified through Section 7 consultation.

Pre-construction surveys are recommended for burrowing owls within 30 days of the initiation of vegetation removal activities at the site. These surveys consist of walking 30-meter transects throughout the project area to identify any owls currently inhabiting areas where project activities may disturb their burrows. BLM will determine whether active burrows would then be avoided or owls relocated.

Indirect impacts on special status species include loss of foraging, nesting, and cover sites; loss of dispersal areas and connectivity to other areas; and contracted home ranges. In addition, noise, vibration, and fugitive dust associated with construction may result in temporary impacts to species, including temporary displacement as some animals may abandon their burrows and seek other existing shelters. These animals will be temporarily exposed to increased predation as they seek other burrows within their home range. In addition, there is an increased risk to species from increased vehicular traffic at and near the proposed site.

Sempre Generation will adhere to the USFWS recommended BMPs for desert tortoise provided in **Appendix A**, and developed through Section 7 consultation. Measures include, but are not limited to, retaining a certified biologist on site during initial site clearance, implementing a worker education plan, and following tortoise relocation guidelines. Mitigation measures designed to protect desert tortoise would likely provide protection for burrowing owl and kit fox as well. Should additional special status species be detected during site construction or operation, appropriate mitigation measures would be determined in coordination with USFWS, BLM, or Nevada Department of Wildlife as appropriate.

During project operation, the area below the gen-tie lines would be maintained clear of vegetation to allow access for inspection and therefore would not provide suitable habitat for special status species. Approximately eight acres would be permanently disturbed within the BLM-managed utility corridor. In addition, the proposed CMS Link would include a permanent loss of approximately 0.7 acres of habitat in the BLM-managed utility corridor. Vehicle use for maintenance of lines would cause some potential for mortality or injury of desert tortoise due to vehicular collision.

Alternative 2

Construction-related impacts would be similar to those described under Alternative 1, above. There would be approximately 44.5 acres of temporary habitat disturbance in the BLM-managed utility corridor.

For the CMS Link there would be approximately 8.8 acres of temporary habitat disturbance in the BLM-managed utility corridor.

Impacts during project operation would be similar to those described under Alternative 1. There would be approximately 13.5 acres of permanent habitat loss in the BLM-managed utility corridor.

For the CMS Link there would be approximately 2.1 acres of permanent habitat loss in the BLM-managed utility corridor.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed, and there would be no change in special status species resource conditions at the project site.

4.5.2. Connected Action

Impacts for construction and operation would be similar to those described under Wildlife (see Section 3.6). There would be approximately 1,400 acres directly impacted by actions on private land. Additional impacts to special status species beyond general wildlife impacts and those described under Alternatives 1 and 2 include the potential for loss of habitat or fragmentation of individual home ranges for desert tortoise and kit fox due to project fencing.

4.6. Migratory Birds

4.6.1. Environmental Consequences

Alternative 1

A variety of migratory bird species regulated under the MBTA, including songbirds, raptors, and ground nesting species such as burrowing owls, use the vegetation community within the project area. During construction, nests could be destroyed and eggs and nestlings could be harmed. The loss of habitat associated with the Proposed Action represents a long-term loss of breeding and foraging habitat for migratory birds. The acres of temporary habitat loss associated with Alternative 1 are described in Section 3.5, Wildlife.

Direct impacts on these species and the possibility of a violation of the MBTA would be avoided if construction were to occur outside of the breeding season. In upland desert habitats, the season generally occurs between March 15 and July 30.

If construction needed to occur during the breeding season, a pre-construction survey of occupied nests would be conducted, including burrowing and ground nesting species. Any discovered occupied nests would have no-construction buffers around them until such time that either the young have fledged the nests or the nests have been abandoned. These measures would prevent impacts on MBTA species and are in accordance with best management practices. The project would comply fully with the BLM's Bald and Golden Eagle Act Instruction Memorandum (BLM 2010b).

Operation of the proposed project would cause the permanent loss of migratory bird habitat as described in Section 3.5, Wildlife. In addition, gen-tie lines present a flight and electrocution hazard to migratory birds which could collide with the lines or be electrocuted. To minimize such potential impacts, all gen-tie lines would comply with the Avian Power Line Interaction Committee (APLIC) 2006 recommendations.

Alternative 2

Impacts would be similar to those described under Alternative 1. The acres of temporary and permanent habitat loss associated with Alternative 2 are described in Section 3.5, Wildlife.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed, and there would be no change in migratory bird resource conditions at the project site.

4.6.2. Connected Action

The types of impacts from the connected action would be similar to those described under Alternative 1.

4.7. Vegetation and Invasive Species/Noxious Weeds

4.7.1. Environmental Consequences

Construction of the gen-tie lines would cause the permanent and temporary loss of native plants associated with clearing and grading for gen-tie lattice structures, staging areas, and access roads. Temporary impacts include the removal of 50 acres of vegetation associated with the gen-tie line and 6.7 acres associated with the CMS link. Permanent impacts include the removal of 14 acres of vegetation associated with the gen-tie line and 1.5 acres associated with the CMS Link. A larger amount of vegetation would be permanently removed during installation of the connected solar facility. Impacts on vegetation would be minimized using measures in **Appendix A**, including cactus salvage and preparation and implementation of a restoration plan. There are no anticipated impacts on vegetation associated with operation of the Proposed Action.

All ground-disturbing activities, such as grading, as well as native plant removal could facilitate the introduction and/or spread of invasive, non-native species, particularly where soil moisture is increased by applying water for dust suppression. Further, humans and vehicles can inadvertently carry invasive, non-native seeds on their clothing, shoes, tires, and on the undercarriage of vehicles. Weed seeds could also be contained in seed mixtures or mulching materials. Power plant operations would have less likelihood of increasing the spread of invasive, non-native, and noxious species because vehicles would use access roads for travel, however, weeds could be introduced during maintenance and operation if equipment or vehicles are not clean and free of soil and plant material. Establishment of noxious weeds has the potential to displace native plant species resulting in reduction of suitable habitat for wildlife, increased erosion risk, and decreased recreation value.

Non-native annual grass species can also increase the risks of wildfire by contributing to an annual grass fire cycle which can be problematic to fire control efforts and destructive to habitat. Occurrence and distribution of grasses would vary based on precipitation and climate. Control measures such as establishing fuel breaks to protect infrastructure and take preventative measures to protect adjacent lands, may be needed. Managing for native plant species or zero-scape would limit wildfire risk.

The potential for construction and operations to increase the spread of invasive, non-native, and noxious plants species would be minimized by using measures described in **Appendix A** for weeds, vegetation and fire prevention. By using these measures, long-term impacts from construction of the Proposed Action associated with invasive, non-native, and noxious species would be minimized.

There are no anticipated direct impacts on vegetation associated with operation of the gen-tie lines.

Alternative 2

The types of impacts from construction would be similar to those described under Alternative 1. However, under Alternative 2, 46 acres of vegetation associated with the gen-tie line and approximately 12 acres associated with the CMS link would be temporarily removed. Permanent impacts include the removal of 14 acres of vegetation associated with the gen-tie line and 3 acres associated with the CMS link alternative.

The types of impacts from operation would be similar to those described under Alternative 1.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed, and there would be no change in vegetation resource conditions at the project site.

4.7.2. Connected Action

The types of impacts from the connected action would be similar to those described under Alternative 1, but would occur over a larger area.

4.8. Cultural Resources

4.8.1. Environmental Consequences

Alternative 1

If Alternative 1 is selected, a Memorandum of Agreement with a treatment plan would need to be prepared to mitigate adverse direct and indirect effects to two of the sites prior to the decision record for the environmental analysis being signed. All mitigation would need to be completed prior to any BLM notice to proceed is authorized.

Direct and indirect impacts could occur on any of the eligible sites if the project allows enhanced access to the project area on existing routes.

Sempra Generation would avoid known sites and follow established protocol for the discovery of any new sites, mitigating impacts to unanticipated discoveries. The proposed action would have no direct effects if mitigation and/or avoidance is conducted.

No impacts would occur during decommissioning; only previously disturbed areas would be disturbed. All cultural sites would be avoided. Adverse effects would not occur.

Alternative 2

The types of impacts from construction would be similar to those described under Alternative 1. Direct and indirect effects could occur on any of the eligible sites if project equipment veers off the existing access road. If Alternative 2 is selected, one site (26Ck9446) could be avoided by spanning the powerline wires and using only the existing utility corridor road that does not affect the site. This would result in a finding of no significant impact for this environmental analysis.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed, and there would be no change in cultural resource conditions at the project site.

4.8.2. Connected Action

Insert connected action analysis.

4.9. Visual Resources

4.9.1. Environmental Consequences

Alternative 1

A visual resources inventory has not been performed in the project area and there is no Visual Resource Management classification.

The proposed gen-tie structures would be located parallel to existing similar structures for the entirety of their length within the BLM-managed utility corridors and would be no higher than those structures. Therefore, there would be no significant alteration of the visual characteristics of the project area.

Alternative 2

The impacts under Alternative 2 would be the same as those described under Alternative 1.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed and there would be no change to visual resource conditions at the site.

4.9.2. Connected Action

Although the proposed project would alter the solar field site's appearance from vacant land to developed land, the solar field would be located near existing energy generation and transmission facilities. There are no private residences, schools, or other sensitive receptors in the vicinity of the project area. As such, the solar field's impact on visual resources would be minimal.

4.10. Recreation

4.10.1. Environmental Consequences

Alternative 1

Hunting primarily occurs in the McCullough Range and would not be affected by development in the valley. Gen-tie line construction could temporarily impact OHV opportunities by limiting access; however, there are no designated routes in the area, and, due to the dispersed nature of recreational use in the area, there would be no adverse impacts under Alternative 1.

Alternative 2

The impacts under Alternative 2 would be the same as those described under Alternative 1.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed, and there would be no change to recreation experiences or opportunities at the project site.

4.10.2. Connected Action

Parts of the solar field would be located within one mile of the Sloan Canyon National Conservation Area boundary; however, there are no designated trails in the portion of the National Conservation Area near the project area and as such, no impacts are expected.

Though the solar field site would be fenced, OHV users could continue to use undesignated routes in the BLM-managed utility corridor west of the solar field to access the hills above the dry lakebed. As such, the solar field would not inhibit access or recreational opportunities.

4.11. Noise

4.11.1. Environmental Consequences

Alternative 1

Off-site discernible noise during construction of the gen-tie lines would be primarily from heavy equipment used during earthwork for grading and post installation operations. Typical construction equipment noise levels are presented in Table 3-3. While noise impacts are expected to be below Boulder City noise thresholds, visitors to the BCCE may experience impacts above threshold for a short duration during these activities. There would be no off-site discernable noise during operation of the facility. There are no sensitive receptors adjacent to the site, and no long-term adverse impacts to noise are anticipated under this alternative.

Table 4.1. Typical Construction Equipment Noise Levels

Equipment	Noise Level (dBA) 50 feet from Source^a	Noise Level (dBA) 500 feet from Source^b
Backhoe	80	60
Boring Jack Power Unit	80	60
Compressor (air)	80	60
Concrete Mixer Truck	85	65
Concrete Pump Truck	82	62
Crane	85	65
Dozer	85	65
Dump Truck	84	64
Excavator	85	65
Front End Loader	80	60
Generator	82	62
Grader	85	65
Jackhammer	85	65
Source: ^a ; ^b		

^aUS Federal Highway Administration 2006

^bIncreasing the distance from the noise source ten times drops the sound pressure to a tenth, or by 20 dBA (see <http://www.sengpielaudio.com/calculator-distance.htm>)

Transmission lines can generate small amounts of noise through a phenomenon known as corona. Corona is caused by the ionization of the air, due to very high electric-field strength, at the surface of the energized conductor and suspension hardware. Corona is a function of voltage, the diameter of the conductor, the number of conductors per phase, and the condition of the conductor and suspension hardware. The electric field around an energized conductor is directly related to the line voltage and is greatest at the surface. The proposed 230-kV conductors for CMS North gen-tie lines would use two conductors per phase of sufficient diameter to control corona effects. With 230-kV overhead construction, standard conductor attachment hardware is typically adequate to control corona. Accordingly, noise associated with operation of the gen-tie line is not anticipated.

Alternative 2

The impacts under Alternative 2 would be the same as those described under Alternative 1.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed, and there would be no change in existing noise conditions at the site.

4.11.2. Connected Action

Construction-related noise impacts at the solar field site would be similar to those experienced along the gen-tie lines but in a more concentrated area.

Noise from operation of the solar field would be limited to vehicle use and occasional equipment use during maintenance activities. These maintenance activities would be intermittent and would have little to no noise effects on visitors to the BCCE. With only seven permanent employees, the proposed action would create no discernable increase in traffic along Highway 95.

4.12. Land Use

4.12.1. Environmental Consequences

Alternative 1

Development under Alternative 1 would not prevent other authorized land uses and would not impact future land use authorizations or ROWs in the project area, including any new gen-tie lines constructed by other private parties within the BLM-managed utility corridors.

Alternative 2

The impacts under Alternative 2 would be the same as described under Alternative 1.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed, and there would be no change in existing land use conditions at the site.

4.12.2. Connected Action

All development on Boulder City property would occur on lands zoned ER – Energy Zone, which is the appropriate zoning classification for the proposed solar energy generation use (Boulder City 2011).

4.13. Socioeconomics

4.13.1. Environmental Consequences

Alternative 1

The proposed project would have a direct beneficial impact on the local and regional economy during the seven-month construction period. On average, 10 to 20 construction and supervisory personnel would be required on site to construct the gen-tie lines. The worker pool is expected to draw from Clark County.

Operation of the gen-tie lines would be managed, remotely monitored, and controlled by the staff of the existing Copper Mountain Solar I facility.

Alternative 2

The impacts under Alternative 2 would be the same as described under Alternative 1.

No Action Alternative

Under the no action alternative, the gen-tie lines would not be constructed, and there would be no change in socioeconomic conditions. Temporary socioeconomic benefits from construction would not be realized.

4.13.2. Connected Action

The connected action would have a direct beneficial impact on the local and regional economy during the 17-month construction period. On average, 80 to 120 personnel would be needed to construct the solar field.

Operation of the solar field would be managed, remotely monitored, and controlled by the staff of the existing Copper Mountain Solar I facility. When fully operational, approximately five additional employees would be hired for on-site maintenance of the CMS North facility. Occasionally, there would be up to ten workers on site that are employed by contractors engaged by Sempra Generation to conduct periodic maintenance or repair activities. The addition of five permanent jobs associated with the operation of the CMS North project would not represent a significant population increase. Because the potential long-term employment is relatively limited, the proposed action is not expected to directly or indirectly impact local housing market, schools, social services, or overall income and employment levels.

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Chapter 5. Cumulative Impacts

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Cumulative impacts are defined by the Council on Environmental Quality in 40 CFR 1508.7 as “impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.”

This cumulative effects analysis addresses the cumulative effects on air quality and climate, water resources, soils, wildlife (including migratory birds and special status species), vegetation and invasive species/noxious weeds, visual resources land use, and socioeconomics that the proposed action would have in conjunction with other past, present, and reasonably foreseeable actions in the project area. The proposed action would not impact the remainder of the resources evaluated in Chapter 3, and these resources are therefore not included in the cumulative analysis.

5.1. Past and Present Actions

Current land use activities in the vicinity of the proposed project include energy production, energy transmission, and dispersed recreation. In the past, mining claims were active in the vicinity, but there are currently no active mining claims. Most of the land in the Eldorado Valley is owned by Boulder City and zoned for energy production. There are three solar energy generation facilities south of the project site: The 10 MW El Dorado facility and 48 MW Copper Mountain Solar I facility (both operated by Sempra Generation), and Nevada Solar One, a 64 MW facility, operated by Acciona North America. There are also several electrical substations in the area to facilitate energy transmission.

5.2. Reasonably Foreseeable Future Actions

As described in Section 2.1.1, the proposed solar field is a “connected action” to the Proposed Action (construction and operation of a gen-tie line within BLM-managed utility corridors). The connected action and Proposed Action are considered together when analyzing the cumulative effects of other past, present, and reasonably, foreseeable future actions.

Reasonably foreseeable future actions constitute those actions that are known or could reasonably be anticipated to occur within the analysis area for each resource, within a time frame appropriate to the expected impacts from the Proposed Action. For the Proposed Action, the time frame for potential future action is assumed to be the duration of the lease, or approximately 35 years. Reasonably foreseeable future actions include dispersed recreation, including OHV use and hunting; continued solar energy production from the CMS I and Nevada Solar One facilities; and additional solar energy development in the Eldorado Valley. Boulder City is currently soliciting applications for solar energy projects within the Eldorado Valley and solar energy development is likely during the lifespan of the CMS North project.

5.3. Cumulative Impacts

5.3.1. Air Quality and Climate

Operation of the proposed solar facilities and any future solar facilities in the Boulder City Energy Zone would have a cumulative beneficial impact on air quality from the potential reduction in emissions from more intensive electricity generation facilities.

5.3.2. Water Resources

Preparation of sites for solar energy facilities would typically include site grading and construction of channels, berms, or retention basins, resulting in potential impacts to area hydrology. Maintenance of historic drainage paths, as well as drywells to ensue percolation of water from retention basin within 72 hours would minimize the contribution to cumulative impacts from the proposed solar field project.

5.3.3. Geology, Minerals and Soils

Some potential for soil erosion exists from the proposed solar field site and associated with any other future solar facilities due to soil disturbance and removal of vegetation. The proposed solar field site would utilize BMPs for soil protection thereby minimizing the contribution to cumulative impacts. In addition, a fugitive dust plan would be developed with mitigation measures to reduce the potential for fugitive dust.

5.3.4. Wildlife (Including Migratory Birds and Special Status Species)

Wildlife could be affected negatively by displacement or disruption of normal behavioral patterns due to any of the reasonably foreseeable future actions, but, in particular, construction, project operations and maintenance, and site rehabilitation from energy development. Energy development in the region could fragment habitats and disrupt wildlife movement corridors. In addition, some of these projects and actions could increase traffic, conflicts with humans, and competition for habitat niches. Some of these actions could also decrease forage quality, quantity, and composition due to groundwater depletion.

Based on the analysis in **Chapter 3**, Affected Environment and Environmental Consequences, the proposed action and connected action together would cause a minimal change in noise levels and less than 1,500 acres of habitat loss. Permanent impacts would be primarily limited to the solar field because that site would be fenced off. As such, the proposed project would only have a minor contribution to wildlife within the analysis area when combined with past, present, and reasonably foreseeable future actions.

5.3.5. Vegetation and Invasive Species/Noxious Weeds

Combined with other past, present, and reasonably foreseeable future actions, the proposed action and connected action would contribute incrementally to vegetation disturbance and removal in the region over the short and long terms. Past, present, and future solar energy development would continue to disturb and remove vegetation in the region due to project facilities, transmission lines, and access roads. These actions would also contribute to the spread of weeds. If projects in the region were not successfully revegetated, native vegetation communities would be lost, or native vegetation communities would be converted over the long term to communities dominated by invasive, nonnative species. The Mojave ecosystem is not fire adapted. The presence of invasive annual grass species could also promote unwanted wildland fire, or wildfire which is very destructive to habitat and native vegetation. Infrastructure may become more at risk to wildland fire occurring on adjacent lands over time.

With implementation of BMPs in Appendix A, including those for noxious weed management and to minimize and manage fire risk, cumulative impacts caused by the proposed action and connected action would be minimized, and no additional mitigation measures are recommended.

5.3.6. Cultural Resources

Cumulative impacts, such as uncontrolled recreational use of Eldorado Valley surrounding the dry lake may continue to be a threat to the integrity of the sites discovered during this project.

5.3.7. Visual Resources

Development of the CMS North project and reasonably foreseeable solar facilities in Boulder City's Energy Zone would result in a change to the existing visual landscape through the introduction of additional solar generating equipment and associated transmission infrastructure. While the proposed and connected action would alter the visual character of the project area (including the viewshed from portions of the Sloan Canyon National Conservation Area), the cumulative projects described in this analysis have already changed the visual character of the area from rural, open space to a more industrial feel both at the generating facilities and along transmission line routes.

5.3.8. Land Use

Because the proposed action and reasonably foreseeable future projects, including any new gen-tie lines in the Eldorado Valley currently proposed by other parties, would be required to comply with adopted land use plans and zoning requirements, these projects would be consistent with the overall land use policies of Boulder City and would not result in any cumulative effects that would be incompatible with existing or long-term land use patterns.

5.3.9. Socioeconomics

The proposed action would have a short-term beneficial cumulative effect from the creation of construction jobs during the construction periods. Operation of the proposed facilities and any future solar energy generating facilities in the Boulder City Energy Zone would have a minor beneficial cumulative effect through the number of jobs created.

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Chapter 6. List of Agencies Contacted

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This section identifies the agencies that were contacted during the preparation of this EA.

6.1. Federal Agencies

US Fish and Wildlife Service, Southern Nevada Field Office, 4701 North Torrey Pines Drive, Las Vegas, NV 89130

6.2. Tribal Governments

Las Vegas Paiute Tribe

Moapa Band of Paiutes

Pahrump Paiute Tribe

Chemehuevi Indian Tribe

Colorado River Indian Tribes

Fort Mojave Indian Tribe

6.3. State Agencies

Nevada Department of Wildlife, Southern Region Office, 4747 Vegas Drive, Las Vegas, NV 89108

6.4. Local Agencies

Boulder City Community Development Department, 401 California Drive, Boulder City, NV 89005

Clark County Desert Conservation Program, 500 South Grand Central Parkway, Las Vegas, NV 89155

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Chapter 7. List of Preparers

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Chapter 8. References

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Appendix A. Best Management Practices

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Appendix B. Biological Survey Report

BIOLOGICAL RESOURCE TECHNICAL REPORT COPPER MOUNTAIN SOLAR NORTH PROJECT ELDORADO VALLEY, NEVADA



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SUMMARY

SEMPRA Energy is proposing to construct a photovoltaic solar power plant and 7-mile transmission line in the west-central El Dorado Valley southwest of the community of Boulder City, Nevada. The Study Area consisted of approximately 2,730 acres. Focused surveys for desert tortoise (*Gopherus agassizii*), a Federal-listed (Threatened) and State-protected species, were conducted in 2010 and 2011. Focused surveys for special status plant species were conducted in 2011. All incidental wildlife and plant species, including other special status species, observed during the surveys were recorded.

Five live tortoises and forty-two burrows were observed during these surveys. Based on the U.S. Fish and Wildlife Service (USFWS) density formula, the Study Area is estimated to support ten adult desert tortoises with a 95% confidence interval range of three to thirty-one adult desert tortoises. Within the Study Area, the overall tortoise density was estimated to be 2.3 tortoises per square mile with a 95% confidence interval range of less than one to 7.2 adult desert tortoises per square mile. The Study Area is located northwest of the Piute-Eldorado Critical Habitat Unit for the desert tortoise.

Five additional special status wildlife species were observed within the Study Area and are considered to be present, although in low densities: burrowing owl (*Athene cunicularia*), prairie falcon (*Falco mexicanus*), loggerhead shrike (*Lanius ludovicianus*), Brewer's sparrow (*Spizella breweri*), and desert kit fox (*Vulpes macrotis*). Seven other special status species were reviewed in this report but were not detected during the surveys and are considered to have a low potential to occur within the Study Area.

No special status plants were found within the Study Area during the surveys. Over 400 individual cacti plants belonging to eight relatively common species were estimated to occur within the Study Area. No species of yucca were observed.

The presence of desert tortoise and five additional special status wildlife species warrants further review of potential impacts. Coordination between BLM, USFWS, Nevada Department of Wildlife (NDOW), and Clark County is recommended. General protection measures and resource management plans aimed at minimizing adverse effects to special status species are recommended in this report.

1.0 INTRODUCTION

1.1 Purpose

This report provides a description of methods and results of focused desert tortoise and special status plant surveys conducted in 2010 and 2011 within the Study Area for the Copper Mountain Solar North Project (Project) as proposed by SEMPRA Energy. The purpose of these surveys was to determine the presence or absence of desert tortoise, rare plants, and other special status species. Although a detailed description of the proposed project and impact assessment are not included, the information presented in this report provides a basis for determining potential impacts on special status species and potential need for further coordination between Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), Nevada Department of Wildlife (NDOW), and Clark County. General measures have been recommended in this report to address potential impacts to special status species.

1.2 Regulatory Framework

This report provides information regarding biological resources regulated by several local, State and Federal laws including, but not limited to, the following environmental policies.

Endangered Species Act

The Endangered Species Act (ESA) was passed by the U.S. Congress in 1973 and provides for the protection of threatened and endangered plants and animals and their critical habitat. The U.S. Fish and Wildlife Service (USFWS) is the responsible federal agency for implementing the ESA for all terrestrial species. Consultation with the USFWS is performed through Section 10 (no federal nexus) or Section 7 (federal agency involved).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the “take” (i.e., killing, harassing, trapping, or attempting to do so) of native migratory bird species. The MBTA makes it unlawful to pursue, hunt, take, capture, kill, or sell birds listed under the MBTA. The statute does not discriminate between live or dead birds, and grants full protection to any bird parts, including feathers, eggs, and nests.

Bald and Golden Eagle Protection Act

Bald and Golden Eagle Protection Act prohibits any form of possession or taking of both bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). Under current regulations, limited take through disturbance or mortality may be authorized for otherwise lawful activities.

BLM Cacti and Yucca Salvaging Guidelines

The BLM typically requires transplanting and salvage of native plant species that would otherwise be affected by development on their lands (BLM 2001). Species of cacti, yucca, and ocotillo are usually considered for transplanting and salvage.

Invasive Plants and Noxious Weeds

The BLM manages invasive plant species and noxious weeds through coordination with the National Invasive Species Council and State of Nevada. The BLM defines noxious weeds as “a plant that interferes with management objectives for a given area of land at a given point in time.” State of Nevada defines noxious weeds and “any species of plant which is, or liable to be, detrimental or destructive and difficult to control or eradicate [Nevada Revised Statute (NRS) 555.005].” The BLM Las Vegas Office has committed to focusing on the Nevada state list of noxious weeds as these species are recognized for having major impacts on ecosystem health and natural resources (BLM 2006). The Nevada Department of Agriculture maintains the list of noxious weeds and has developed a rating system that reflects the statewide importance of the noxious weed, the likelihood that eradication or control efforts would be successful, and the present distribution of noxious weeds within Nevada.

Nevada Revised Statute 501

NRS 501, which is supplemented by the Nevada Administrative Code (NAC), is the Nevada state law that covers administration and enforcement of wildlife resources within the state. NDOW is the state agency responsible for implementation of NRS 501, including the designation of protected species and issuance of authorizations for impacts to protected species. Species designations are maintained by the Nevada Natural Heritage Program, Department of Conservation and Natural Resources.

Nevada Revised Statute 527

NRS 527.060–527.120, supplemented by the NAC, protects and regulates the removal of Christmas trees, yuccas, and cacti for commercial purposes. Such removal or possession requires a permit and tags from the Nevada Spur Forester Fire Warden, Nevada Division of Forestry.

Clark County Multiple Species Habitat Conservation Plan (MSHCP)

The Clark County MSHCP and associated Environmental Impact Statement (EIS) were developed by its applicants (Clark County; the Cities of Las Vegas, North Las Vegas, Boulder City, Mesquite, and Henderson; and the Nevada Department of Transportation) in November 2000 (CCDCP 2000). The primary objectives of the MSHCP are to allow the incidental take of Covered Species (including ESA listed species), streamline incidental take permitting process for applicants and regulators, and ensure conservation of Covered Species within Clark County.

1.3 Site Location

The Project site is located within the west-central Eldorado Valley approximately seven miles southwest of Boulder City and ten miles south-southeast of the city of Henderson, Nevada (Figure 1). The Project site is found on the Boulder City NW and Boulder City SW 7.5-Minute U.S. Geological Survey topographic quadrangles. Elevation at the site ranges from approximately 1,750 feet to 1,850 feet above mean sea level (amsl). The site is located outside the boundaries of an Area of Critical Environmental Concern (ACEC), Desert Wildlife Management Area (DWMA), BLM wilderness area, or USFWS designated Critical Habitat Unit (CHU). At its closest point, the Project site is located 1.7 miles north of the Piute-Eldorado CHU for desert tortoise.



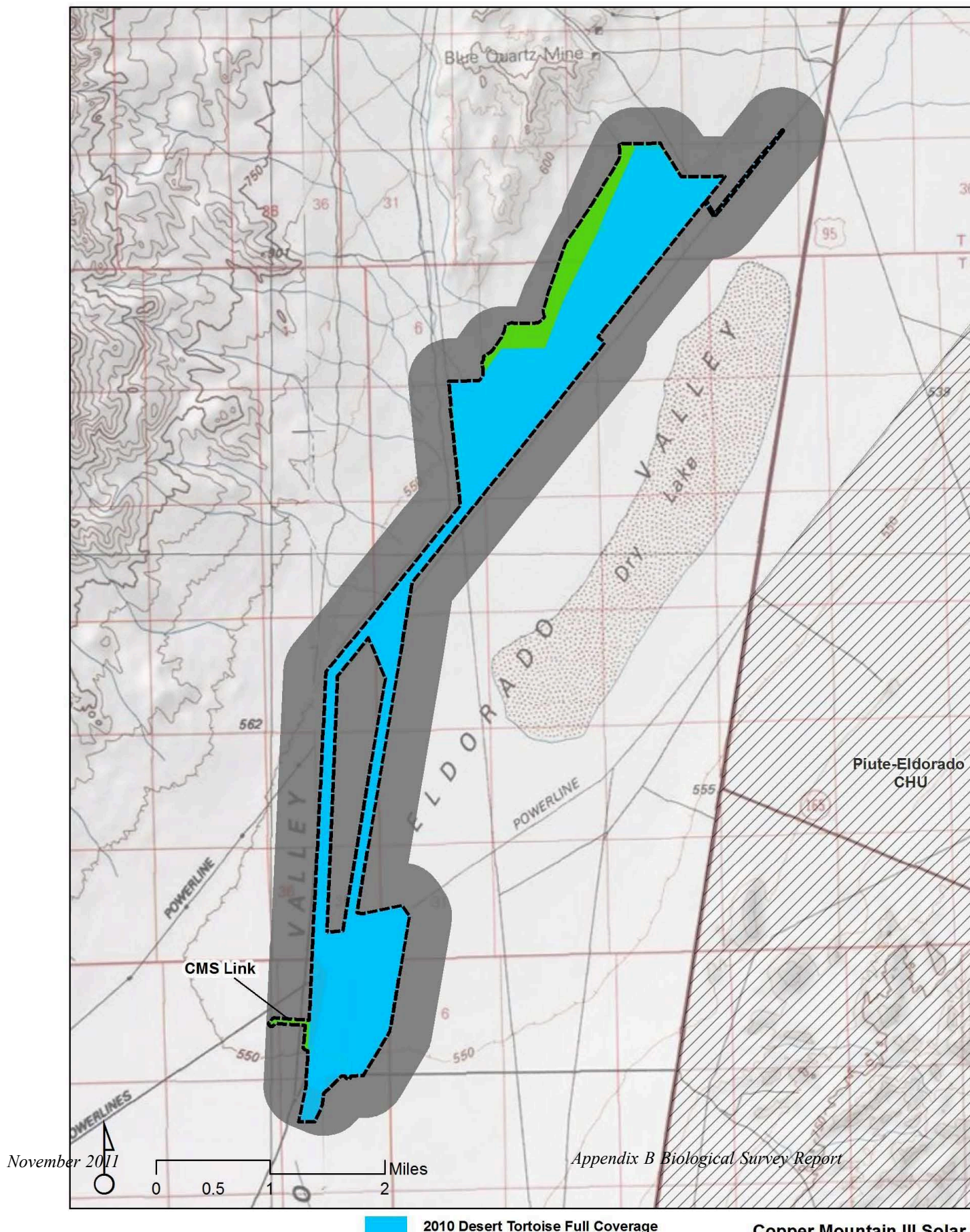
The site sits on a gentle gradient sloping from the northwest to the southeast, the land dropping approximately 1,000 feet over a linear distance of 8.5 miles, resulting in an average running grade of 2%. The soil within the Project site is alluvial fill from the McCullough Range to the west. The soil generally consists of sandy silt covered with rocks that range in size from large cobble in the west to small gravel/coarse sand in the east. Previous human-related disturbance was evident within the Study Area. Several dirt roads transect the Study Area in a general east-west direction. Evidence of off-highway vehicular existed but did not indicate that the area was heavily used. Two prominent power transmission line corridors occur in the southeastern extent of the Study Area.

1.4 Study Area

For the purpose of this report, the Study Area is defined by the area of land subject to biological resource surveys (Figure 2). Regular coordination between Ironwood Consulting, Inc. and Environmental Management and Planning Solutions, Inc. ensured that all potential disturbance areas were included in the scope of surveys to the extent feasible based on current project understanding. Survey buffers were applied to the proposed transmission line to result in an approximately 160-meter wide study corridor. This approach may allow for some degree of flexibility during final engineering design with the assurance that the final disturbance area would be covered by the Study Area. Figure 2 provides the boundaries of biological resource Study Area. The legal description of the Study Area is shown in Table 1.

Table 1 - Legal Description of the Study Area

Township	Range	Sections (partial)
23 South	63 East	27, 28, 32, 33 and 34
24 South	62 East	24, 25 and 36
24 South	63 East	4, 5, 6, 7, 8, 18, 19, 30 and 31
25 South	62 East	1, 2 and 12
25 South	63 East	6



2.0 METHODS

2.1 Special Status Species Definition

For assessment purposes in this report, a special status species has been defined as a plant or wildlife species that meets the following criteria:

- designated as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) and is protected under either the Federal Endangered Species Act (FESA);
- candidate species being considered or proposed for listing under FESA;
- protected under Nevada Revised Statutes and Nevada Administrative Code Sections 501, 503 and 527; and/or
- designated sensitive by the Bureau of Land Management (BLM) (Manual 6840.06 C).

2.2 Literature Search

Prior to conducting the focused surveys, a biological resources literature search was performed. This included referencing relevant lists and publications from the BLM, USFWS, and Nevada Natural Heritage Program (NNHP), as well as researching information from regional documents such as the Clark County Multiple Species Habitat Conservation Plan (MSHCP). Biological reports prepared on behalf of other projects within the region were reviewed for relevant information.

2.3 Focused Desert Tortoise Survey

Full coverage desert tortoise surveys were conducted during two survey periods: (1) June 14 to July 2, 2010 and (2) April 23 and 24, 2011. Focused surveys were conducted according to the USFWS revised survey protocol (USFWS 2010). The full coverage survey option described in the revised protocols was unchanged from the previous protocol (USFWS 1992a). The revised protocol also provided methods to estimate the abundance of tortoises occurring within the action area. Methods were discussed with the Las Vegas USFWS office before beginning the surveys because the surveys in 2010 were conducted after the protocol survey season (Burroughs 2010). It was agreed that the surveys would follow protocol guidelines including the stipulation that, on a daily basis, surveying would cease when air temperature, measured 5-cm above the soil surface in an area of full sun, but in the shade of the observer, reached 40⁰ C (104⁰ F). Full-coverage survey transects were spaced at 10-meters and zone of influence (ZOI) surveys were conducted at 200-, 400-, and 600-meter distances from the site boundary and the boundaries of the transmission line ROWs (Figure 2).

The field surveys collected information including:

- Preliminary characterization of plant communities and soils present in the Study Area;
- Recording all sign of desert tortoises including live tortoises, burrows, scat, tracks, and carcasses;
- Recording all other special status species sightings during the survey; and
- Recording all sightings of all common plant and animal species.

All tortoise sign (e.g., live tortoises, shell/bone/scutes, scats, burrows/pallets, tracks, egg shell fragments, and courtship rings) were recorded (Table 2). The location of all tortoise sign was recorded on a Garmin Global Positioning System (GPS) unit (GPS 72, 76, or 60CSx) using a unique identification code. The code included a two-character acronym for the type of sign (e.g., TO-live tortoise, BU-burrow, SC-scat), two-character initials for the lead surveyor of the crew, and a unique sequential number. In addition to recording sign with the GPS unit, standardized paper datasheets were completed. All data was entered from these data sheets into a Microsoft Excel spreadsheet and incorporated into Geographical Information Systems (GIS) for spatial representation of the distribution of desert tortoise sign.

Table 2 - Desert Tortoise Data Recorded

Type of Sign	Measurements	Estimates	Other
Live tortoise		Sex, age class	Location, activity
Cover site (burrow, pallet)	Width, height	Depth	Condition (active [excellent], inactive [good, fair, or poor]) and location. Each burrow was investigated by using a handheld mirror and/or flashlight to detect if a tortoise was present
Scat	Quantity	Age class	Condition (this year or not this year), location
Shell or bone (carcass or fragments)		Sex, age class, time since death	Location
Tracks		Age	Location
Eggs or fragments		# of eggs	Condition, location
Courtship rings		Width	Location

2.4 Botanical Survey

The purpose of the botanical survey was to provide information on all special status plants and natural communities. Surveys were performed to maximize the likelihood of locating special status plant species or special status natural communities within the Study Area. The primary objective was to identify all plant species within the Study Area to the taxonomic level (i.e., species, subspecies, or variety) necessary to determine rarity status. The botanical study followed the guidelines set forth by:

- Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species (BLM 2009); and
- Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 2000).

The botanical survey was scheduled to coincide with the primary blooming period for targeted special status species and were performed between April 20 and May 10, 2011. The survey team included personnel familiar with the identification of flora in the Mojave Desert of Southern Nevada and consisted of highly qualified botanists: Kent Hughes, Glenn Rink, Tim Thomas, Michael Honer, Michelle Cloud-Hughes, Steve Till, and Brian Sandstrom. Information on potential special status species was reviewed by the survey team to obtain an effective search image. Records of all plant species observed were maintained daily. A checklist was developed based on

previous surveys and reviewed during each subsequent day of survey. On average, linear pedestrian transects were walked at 15-meter spacing. In areas of lower cover and diversity (e.g., desert pavement), transects were spaced further apart. In areas of greater cover and diversity, transects were spaced closer to one another. This allowed for a comprehensive survey of the Study Area. Surveyors walked at a rate of approximately one mile per hour. At this rate, the resulting level of effort averaged one person-hour per six acres survey area. Additional time was spent (in the field and after the day survey) keying plant taxonomy. If a plant of unknown identification was found, a GPS record was taken and a unique identification number was assigned so that if after proper identification, it was determined to be a special status species, the population could be revisited to collect additional data. All data were incorporated into GIS.

2.5 Additional Special Status Wildlife Species

In addition to recording desert tortoise and special status plant species, surveyors recorded all wildlife species, regardless of status, that were encountered during the survey. All special status species recorded as incidental data were also recorded by GPS and assigned a unique identifier. All other species were tallied at the end of each transect and recorded throughout each day by each crew. All data were entered from these datasheets and were incorporated into GIS.

2.6 Rainfall Analysis

Measurements of total and average precipitation during winter periods (October through March) are important in determining the efficacy of surveys. Higher winter rainfall totals, like those experienced in the previous two winter seasons, generally result in higher rates of annual plant germination, which typically correlate with increased tortoise activity (higher likelihood of encountering a tortoise above ground) during the spring season. Rainfall data was obtained from the Western Regional Climate Center (2011). The Boulder City Cooperative Observer Program (COOP) weather station (elevation of 2,520 ft and approximately seven miles northeast) was the most proximate station to the Study Area; however, rainfall data was not available more recent than 2004. Subsequently, monthly precipitation totals were obtained from the next closest weather station providing current data: Searchlight, Nevada Remote Automated Weather Stations (RAWS) (elevation of 3,540 ft and located approximately twenty miles south). The total rainfall for winter months was summarized and compared to available historical winter rainfall data (Table 3). The historical average rainfall for Searchlight during the winter months was estimated to be 0.74 inches. By comparison, above-average winter rainfall occurred from 2009 to 2011. The most-recent winter of 2010-2011 resulted in winter rainfall twice that of the historical mean.

Table 3 - Winter Rainfall Data¹ (inches)

	October	November	December	January	February	March	Total	Monthly Average
2009-2010	0.00	0.09	0.97	3.13	1.14	0.00 ²	5.33	0.89
2010-2011	1.98	0.07	5.41	0.00	1.51	0.00 ²	8.97	1.50
Historical Mean³	0.94	0.97	0.78	0.52	0.43	0.80	4.44	0.74

¹ Searchlight RAWS - Western Regional Climate Center (2011)

² Data missing

³ Range of data from 1931 to 2011

3.0 RESULTS

3.1 Vegetation Alliance

The Study Area supports one primary vegetation alliance: *Larrea tridentata*-*Ambrosia dumosa* Shrubland Alliance (Nevada Natural Heritage Program 2011). This alliance is analogous to Creosote Bush-White Bursage Series (Sawyer and Keeler-Wolf 1995) and Mojavean Creosote Bush Scrub (Holland 1986). The association consists of two dominant plant species: creosote bush (*Larrea tridentata*) and burro brush (*Ambrosia dumosa*). Other plant species characteristic of this alliance within the Study Area include littleleaf ratany (*Krameria erecta*), beavertail cactus (*Cylindropuntia basilaris*), and golden cholla (*Cylindropuntia echinocarpa*). Representative site photographs are found in Appendix A. Ninety-five species of plants were identified within Study Area during the surveys (Appendix B).

3.2 General Wildlife

All wildlife species observed or detected within the Study Area are listed in Appendix C. Wildlife observed within the Study Area were representative of the northeastern Mojave Desert. Nineteen bird species were detected within the Study area; those bird species relatively common to the Study Area included common raven (*Corvus corax*), black-throated sparrow (*Amphispiza bilineata*), horned lark (*Eremophila alpestris*), red-tailed hawk (*Buteo jamaicensis*), lesser nighthawk (*Chordeiles minor*), common poorwill (*Phalaenoptilus nuttallii*), white-crowned sparrow (*Zonotrichia leucophrys*), and ash-throated flycatcher (*Myiarchus cinerascens*). Ten species of reptiles were detected within the Study Area; those reptile species relatively common to the Study Area included western whiptail (*Cnemidophorus tigris*), zebra-tailed lizard (*Callisaurus draconoides*), and side-blotched lizard (*Uta stansburiana*). Three species of mammals were detected within the Study Area: black-tailed jackrabbit (*Lepus californicus*), antelope ground squirrel (*Ammospermophilus leucurus*), and desert kit fox (*Vulpes macrotis arsipus*). Small mammals likely inhabit the Study Area, although focused trapping was not conducted. No fish or amphibian species are likely to inhabit the Study Area or immediately surrounding areas because suitable aquatic habitat is not present.

3.3 Special Status Plant Species

Six special status species were reviewed for their potential to occur within the Study Area (Table 4). Correspondence with the NNHP regarding special status species near the Study Area was included in this assessment (Appendix C). None of the species are federal-listed (endangered or threatened), but all are considered special status by the BLM and/or State of Nevada. Descriptions of these species and an explanation of the occurrence status follow the table. A list of plant species observed during the surveys is found in Appendix A.

Table 4 – Special Status Plants Species

Common Name Scientific Name	Status	Habitat	Flowering Period	Survey Results
<i>Arctomecon merriami</i> white bearpoppy	FWS: none BLM: sensitive State: none NNHP: S3 MSHCP: covered	Desert saltbush scrub and Mojave desert scrub.	Apr - Jun	Not Found
<i>Arctomecon californica</i> Las Vegas bearpoppy	FWS: none BLM: none State: CE NNHP: S3 MSHCP: covered	Mojave desert scrub and Desert saltbush scrub on gypsum soils	Apr - May	Not Found
<i>Littlefield [Astragalus] preussii</i> var. <i>laxiflorus</i> Littlefield milkvetch	FWS: none BLM: none State: none NNHP: S1S2 MSHCP: none	Chenopod scrub with dune or deep sand habitats	Mar - May	Not Found
<i>Penstemon bicolor</i> ssp. <i>bicolor</i> yellow twotone beardtongue	FWS: none BLM: sensitive State: none NNHP: S2 MSHCP: covered	Creosote-bursage, blackbrush, and mixed scrub communities	Apr - Jun	Not Found
<i>Penstemon bicolor</i> ssp. <i>roseus</i> rosy twotone beardtongue	FWS: none BLM: sensitive State: none NNHP: S3 MSHCP: none	Creosote-bursage, blackbrush, and mixed scrub communities	Mar - Sept	Not Found
<i>Penstemon albomarginatus</i> White-margined beardtongue	FWS: none BLM: sensitive State: none NNHP: S2 MSHCP: covered	Mojave desert scrub and blackbrush communities	Mar - May	Not Found
FWS - U.S. Fish and Wildlife Service NNHP - Nevada Natural Heritage Program MSHCP – Clark County Multiple Species Habitat Conservation Plan		<u>Nevada State Protected Classification</u> CE - critically endangered <u>NNHP State Ranks for Threats and Vulnerability</u> S1 – critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats or other factors S2 - imperiled due to rarity or other demonstrable factors S3 - vulnerable to decline because of rare and local throughout its range, or with very restricted range		

Arctomecon merriami (white bearpoppy) is a Nevada Special Status Species designated Sensitive by the BLM State Office. This species is ranked by the NNHP as being vulnerable to decline due to its restricted range. White bearpoppy is an evergreen perennial herb that is historically known to occur in Mojave Desert and salt desert scrub habitats, frequently in limestone and dolomite soils; on ridges, rocky slopes, gravelly canyon washes, and old lakebeds originating from carbonate rock at elevations ranging from 2,000 to 6,200 feet amsl. Populations are scattered within Clark, Lincoln, and Nye counties in Nevada and in parts of California. The white bearpoppy was not found within the Study Area during the surveys.

Arctomecon californica (Las Vegas bearpoppy) is a Nevada Fully Protected and Critically Endangered evergreen, mound-forming perennial species. This species is ranked by the NNHP as being vulnerable to decline due to its restricted range. It is historically known to occur in Mojave Desert and salt desert scrubs in gypsum soils in areas of low relief in association with other gypsum-tolerant species at elevations ranging from 1,300 to 2,700 feet amsl. Distribution of Las Vegas bearpoppy is patchy across low hills, on ridges and benches within Las Vegas Valley. Its habitat is threatened by urban and residential development, highway construction and maintenance, flood control, gypsum mining, as well as off-road vehicle use, dumping, and pollinator declines because of habitat fragmentation. The Las Vegas bearpoppy was not found within the Study Area during the surveys.

Littlefield [Astragalus] preussii var. laxiflorus (Littlefield milkvetch) has been determined by the NNHP to be critically imperiled and especially vulnerable to extinction due to extreme rarity (Appendix C). This species is a perennial herb associated with chenopod scrub communities supporting dune or deep sand habitats. Possibly less than six occurrences of this species have been documented in Nevada, although it is locally abundant in certain regions of Arizona. This species is likely dependent on sand transport systems from dry lakebeds towards lower slopes. Suitable habitat is not present within the Study Area and the Littlefield milkvetch was not found during the surveys.

Penstemon bicolor ssp. bicolor (yellow twotone beardtongue) is a Nevada Special Status Species designated Sensitive by the BLM State Office. This species is ranked by the NNHP as being imperiled due to rarity. This species is an herbaceous short-lived perennial known to occur in creosote-bursage, blackbrush, and mixed scrub communities on calcareous or carbonate soils; typically found in active gravel washes, rock crevices, and outcrops at elevations from 2,500 feet to 5,500 feet amsl. Yellow twotone beardtongue is endemic to southern Nevada and known to occur in lower elevations of the Spring Mountains and the McCullough Range. Suitable habitat is threatened by urban expansion of Las Vegas and nearby communities. The yellow twotone beardtongue was not found within the Study Area during the surveys.

Penstemon bicolor ssp. roseus (rosy twotone beardtongue) is a Nevada Special Status Species designated Sensitive by the BLM State Office. This species is ranked by the NNHP as being vulnerable to decline due to its restricted range. Rosy twotone beardtongue is a perennial herb that is known to flower from late-winter to early-spring. It is historically known to occur in creosote-bursage, blackbrush, and mixed scrub communities on rocky calcareous, granitic, or volcanic soils in washes, roadsides, scree at outcrop bases, rock crevices, or similar places receiving enhanced runoff. Rosy twotone beardtongue was not found within the Study Area during the surveys.

Penstemon albomarginatus (white-margined beardtongue) is a Nevada Special Status Species designated Sensitive by the BLM State Office. This species is ranked by the NNHP as being imperiled due to rarity. White-margined beardtongue is a perennial herb that is historically known to occur in Mojave Desert scrub, and less frequently in blackbrush scrub, on sand bottoms of outwash canyons and the leeward side of lake beds at elevations ranging from 1,500 feet to 3,500 feet amsl. This species is dependent on sand transport systems from dry lakebeds towards lower slopes. It is endemic to the eastern Mojave Desert and has been recorded in Hidden Valley, Jean Lake, and Roach Lake. Suitable habitat is not present within the Study Area and the white-margined beardtongue was not found during the surveys.

3.4 Cacti and Yucca

Cacti and yucca, as well as evergreen trees, are protected and regulated by BLM and Nevada policy. These regulations cover the removal or possession at commercial rates of cacti, yucca, and evergreen trees. In compliance with these regulations an estimate of the number of cacti and yucca was compiled for the Study Area during the surveys. No species of yucca were observed. Eight species of cactus were observed (Table 5).

Table 5 - Estimates of Cacti within Study Area

Scientific Name	Common Name	Estimated Quantity
<i>Cylindropuntia acanthocarpa</i> var. <i>coloradensis</i>	acanthocarpa	30 to 50
<i>Cylindropuntia basilaris</i> ssp. <i>basilaris</i>	beavertail	80 to 100
<i>Cylindropuntia echinocarpa</i>	golden cholla	80 to 100
<i>Cylindropuntia ramossissima</i>	pencil cholla	40 to 60
<i>Echinocactus polycephalus</i>	cottontop	20 to 30
<i>Ferocactus cylindraceus</i> var. <i>cylindraceus</i>	barrel cactus	30 to 50
<i>Mammillaria tetrancistra</i>	Common fishhook cactus	20 to 30
<i>Sclerocactus johnsonii</i>	Johnson's fishhook cactus	10 to 20

3.5 Invasive Plant Species

One invasive plant species designated by the Nevada Department of Agriculture as a Category B weed species was found within the Study Area: Sahara Mustard (*Brassica tournefortii*). Category B species are defined as “weeds established in scattered populations in some counties of the state; actively excluded where possible, actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur.” Other invasive species found within the Study Area included Mediterranean grass (*Schismus barbatus*), cheat grass (*Bromus tectorum*), red brome (*Bromus madritensis* ssp. *rubens*), and Russian thistle (*Salsola tragus*). These species are recognized for their widespread distribution and are typically not considered to be feasibly controlled on a large scale.

3.6 Special Status Wildlife Species

Thirteen special status wildlife species were evaluated for their potential to occur (Table 6). One wildlife species that is Federal-listed (Threatened) and State-protected occurs within the Study Area: the desert tortoise. Five additional special status wildlife species were detected within the Study Area: burrowing owl (*Athene cunicularia*), prairie falcon (*Falco mexicanus*), loggerhead shrike (*Lanius ludovicianus*), Brewer's sparrow (*Spizella breweri*), and desert kit fox (*Vulpes macrotis*). Special status species that were detected within the Study Area are discussed further in this section of the report.

Table 6 - Special Status Wildlife Species

Scientific Name Common Name	Status	Potential to Occur
REPTILES		
<i>Gopherus agassizii</i> desert tortoise	FWS: threatened BLM: sensitive State: protected NNHP: S2S3 MSHCP: covered	Present Five live tortoises observed in northern half of Study Area. Forty-two fair to excellent burrows and nine carcasses observed within Study Area.
<i>Heloderma suspectum cinctum</i> Gila monster	FWS: none BLM: sensitive State: protected NNHP: S2 MSHCP: none	Not Found Low potential to occur in higher elevations of Study Area. Suitable habitat located in rocky foothills ½ mile west of Study Area in the north.
<i>Sauromalus obesus</i> chuckwalla	FWS: none BLM: sensitive State: none NNHP: S3 MSHCP: none	Not Found Low potential to occur in higher elevations of Study Area. Suitable habitat located in rocky foothills ½ mile west of Study Area in the north.
BIRDS		
<i>Aquila chrysaetos</i> golden eagle	FWS: none BLM: sensitive State: protected NNHP: S4 MSHCP: none	Not Found Low potential (foraging). Nesting habitat is absent from Study Area. Suitable nesting habitat approximately three miles west of Study Area in McCullough range.
<i>Athene cunicularia</i> burrowing owl	FWS: none BLM: sensitive State: protected NNHP: S3B MSHCP: none	Present Active sign (two burrows, white wash and pellets) observed in the northern half of the Study Area. Likely resident in low numbers.
<i>Falco mexicanus</i> prairie falcon	FWS: none BLM: sensitive State: protected NNHP: S4 MSHCP: none	Present (foraging only) One individual observed in flight over northern half of Study Area. May forage within Study Area. Nesting habitat is absent from Study Area. Suitable nesting habitat approximately three miles west of Study Area in McCullough range.
<i>Lanius ludovicianus</i> loggerhead shrike	FWS: none BLM: sensitive State: protected NNHP: S4 MSHCP: none	Present One individual observed within Study Area. Possible resident in low numbers.

<i>Scientific Name</i> Common Name	Status	Potential to Occur
<i>Spizella breweri</i> Brewer's sparrow	FWS: none BLM: none State: protected NNHP: S4B MSHCP: none	Present One individual observed within Study Area. Possible resident in low numbers.
<i>Toxostoma lecontei</i> Le Conte's thrasher	FWS: none BLM: sensitive State: protected NNHP: S2 MSHCP: none	Not Found Low potential
MAMMALS		
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	FWS: none BLM: sensitive State: protected NNHP: S2 MSHCP: none	Not Found Low potential to occur. Foraging only.
<i>Myotis ciliolabrum</i> western small-footed myotis bat	FWS: none BLM: sensitive State: none NNHP: S2 MSHCP: none	Not Found Low potential to occur. Foraging only.
<i>Tadarida brasiliensis</i> Brazilian free-tailed bat	FWS: none BLM: sensitive State: protected NNHP: S3S4 MSHCP: none	Not Found Low potential to occur. Foraging only.
<i>Vulpes macrotis</i> desert kit fox	FWS: none BLM: none State: protected NNHP: S3 MSHCP: none	Present Fifteen burrow complexes with recent and historical sign observed within Study Area.

FWS - U.S. Fish and Wildlife Service

NNHP - Nevada Natural Heritage Program

MSHCP - Clark County Multiple Species Habitat Conservation Plan

Protected - NRS 501

NNHP State Ranks for Threats and Vulnerability

S1 - critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats or other factors

S2 - imperiled due to rarity or other demonstrable factors

S3 - vulnerable to decline because of rare and local throughout its range, or with very restricted range

S4 - long-term concern, though now apparently secure; usually rare in parts of its range, especially at its periphery

B - breeding status within Nevada

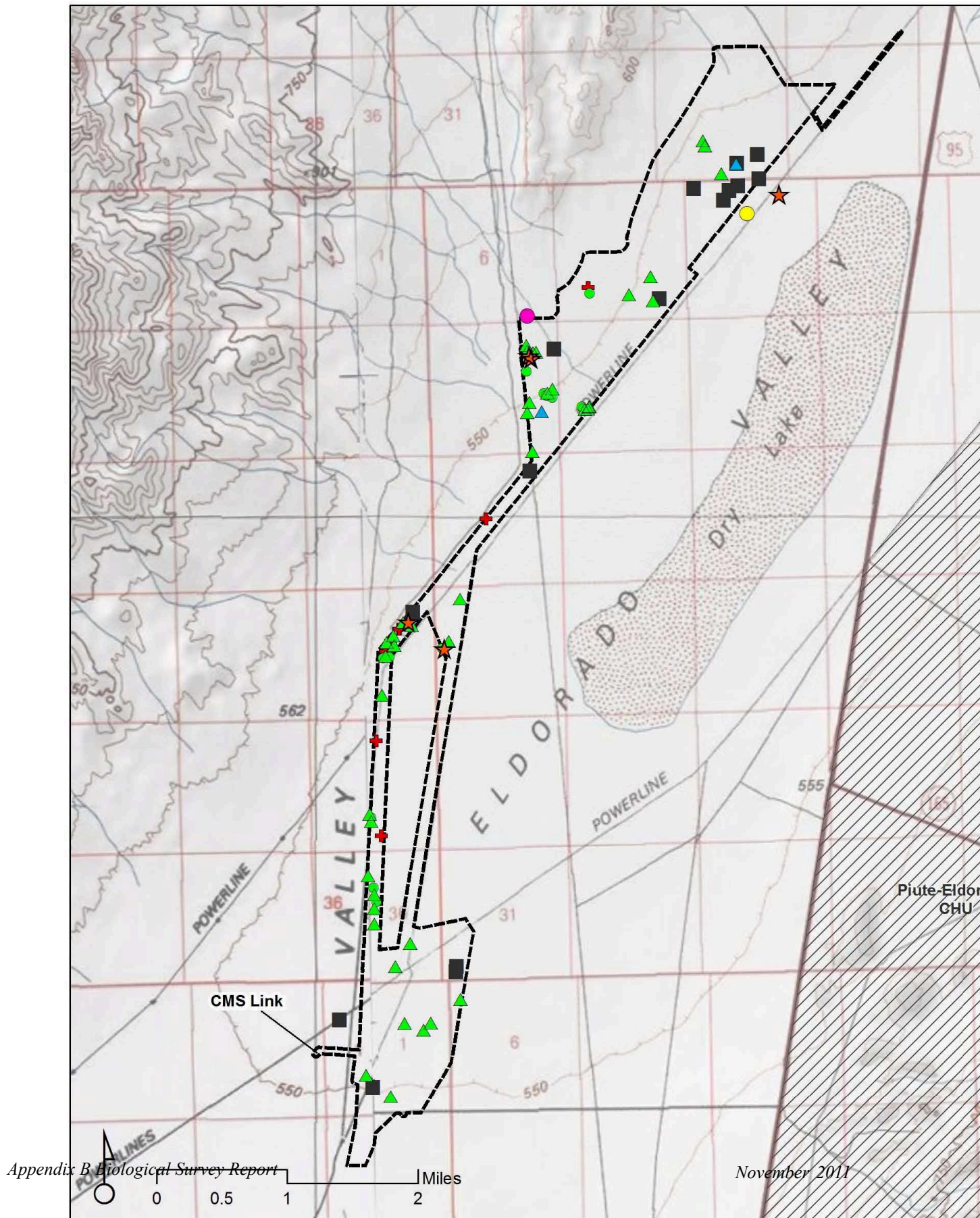
***Gopherus agassizii* (desert tortoise)** is a Federal-listed (Threatened), BLM-sensitive, and State-protected species. The desert tortoise is historically known to inhabit desert scrub, desert wash and Joshua tree habitats throughout the Mojave and Sonora deserts with appropriate soils for burrowing, and prefers areas of creosote scrub with abundant annual plant species, which are its primary food source. Desert tortoises are territorial and generally create a number of burrows within a given territory all of which may be used during the times of year when they are active (typically spring and fall). Five live desert tortoises (two that were in the immediate vicinity of one another) were found within or adjacent to the Study Area. Forty-two burrows, of which approximately one-third contained evidence of recent use (active burrows) were found within the Study Area (Figure 3). Other sign including nine carcasses and scat were observed.

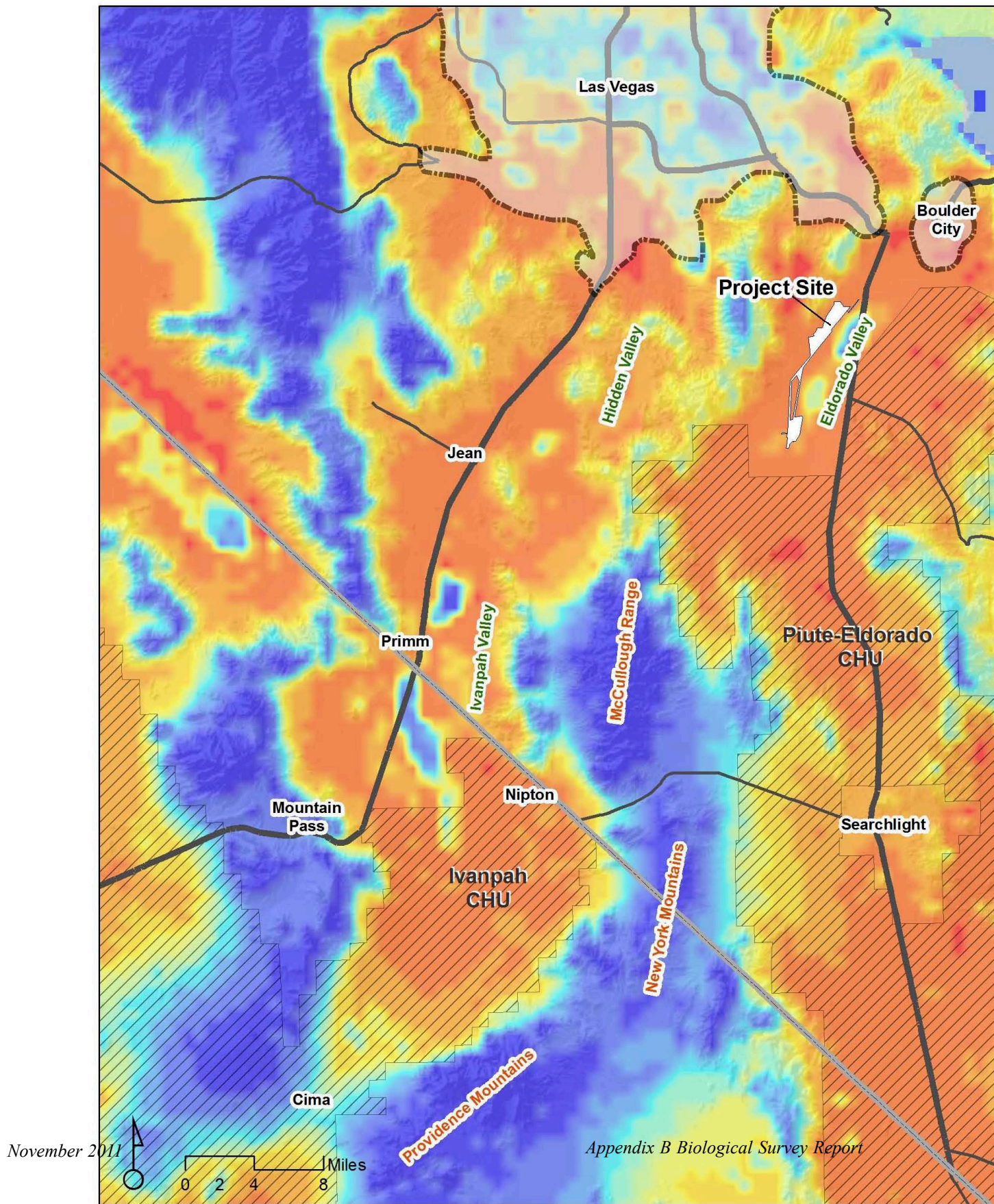
For the purposes of this analysis, the size of the action area is equivalent to the Study Area. Using the total number of live tortoises encountered during the survey, a range of estimated numbers of tortoises within the Study Area was calculated using the formula described in the revised protocol (USFWS 2010):

$$\left(\begin{array}{c} \text{Estimated number of tortoises} \\ \text{within action area} \end{array} \right) = \frac{\left(\begin{array}{c} \text{Number of tortoises} \\ \text{observed above ground} \end{array} \right)}{\left(\begin{array}{c} \text{Probability that} \\ \text{a tortoise is} \\ \text{above ground (P}_a\text{)} \end{array} \right) \left(\begin{array}{c} \text{Probability of} \\ \text{detecting a tortoise,} \\ \text{if above ground (P}_d\text{)} \end{array} \right)} \left(\begin{array}{c} \text{Size of action area} \\ \text{Size of area surveyed} \end{array} \right)$$

A conservative value of 0.64 was used for the P_a (probability that a tortoise is above ground). P_d (probability of detecting a tortoise, if above ground) is a constant value of 0.63 based on regional sampling data (USFWS 2010). Based on this formula, the Study Area (approximately 2,730 acres) is estimated to support ten adult desert tortoises (95% confidence interval estimates are three to thirty-one adult desert tortoises). Within the Study Area, the overall tortoise density is estimated to be 2.3 tortoises per square mile (95% confidence interval estimates are less than one to 7.2 adult desert tortoises per square mile).

In assessing impacts to desert tortoise, the USFWS has expressed recent concern with preserving necessary habitat connectivity and genetic flow between large geographically distant populations (USFWS 2011a and 2011b). Preservation of connectivity between the Ivanpah and Piute-Eldorado Critical Habitat Units (CHU) is of primary interest by the USFWS (USFWS 2011a). Recent studies have indicated that the main connectivity between these CHUs is located north-south through eastern Ivanpah Valley and east-west through the northern McCullough Range south of Hidden Valley (Figure 4; Hagerty 2010 and Nussear 2009). The Project is located approximately seven miles northeast of the main connectivity corridor; however, the least cost path modeling provided by Hagerty (2010) indicates that several potential routes located west and north of the Study Area may be viable for desert tortoise connectivity.





Effects to desert tortoises should further be evaluated in context with the Desert Tortoise Recovery Plan (USFWS 2008a). The recovery plan addresses conservation and enhancement of desert tortoise populations as a whole and also within distinct recovery units. The Study Area is located in the Northeastern Mojave Recovery Unit. Desert tortoise populations within this recovery unit have experienced a decline in densities over the last several decades (USFWS 2011a).

***Athene cunicularia* (burrowing owl)** is a BLM-sensitive, State-protected species and is protected by the Migratory Bird Treaty Act. It is historically known to occur in open, dry grasslands, agricultural and range lands, and desert habitats often associated with burrowing animals. This species typically nests in mammal burrows although they may use man-made structures including culverts and debris piles. They exhibit strong nest site fidelity. Burrowing owls eat insects, small mammals and reptiles. Burrowing owls can be found from California to Texas and into Mexico. In some cases, owls migrate into southern deserts during the winter. Evidence of burrowing owl presence, consisting of “whitewash” at the entrance to a non-active burrow, was found on the site; thus burrowing owls can be considered present, but in low densities, within the Study Area. The tortoise burrows documented during the surveys could also serve as possible burrowing owl burrows; however, no other burrows contained sign of recent or historical use (Figure 3).

***Falco mexicanus* (prairie falcon)** is a BLM-sensitive, State-protected species and is protected by the Migratory Bird Treaty Act. This large falcon typically builds nest sites on cliffs, similar to the golden eagle. In the desert they are found in most vegetation types, although sparse vegetation provides the best foraging habitat. In the Mojave, mean home range size has been found to be approximately 50 to 70 km² (Harmata et al. 1978). A single prairie falcon was observed in flight over the northern portion of the Study Area in spring 2011 (Figure 3). Nesting habitat for this species does not occur within the Study Area. The nearest possible nesting habitat is within the McCullough Range located approximately four miles west of the Study Area. Prairie falcons are expected to be an infrequent forager within the Study Area.

***Lanius ludovicianus* (loggerhead shrike)** is a BLM-sensitive, State-protected species and is protected by the Migratory Bird Treaty Act. It typically is found in open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. As a predatory bird its diet consists of insects, amphibians, small reptiles, small mammals, and other birds. Shrikes typically build nests one to three meters above the ground depending on the height of the vegetation. One loggerhead shrike was recorded during the surveys (Figure 3). This species can be considered present, but in low densities, within the Study Area.

***Spizella breweri* (Brewer's sparrow)** is a State-protected species and is protected by the Migratory Bird Treaty Act. This species typically breeds in shrub habitats, such as sagebrush habitats east of Sierra Nevada Range and in higher valleys of the Mojave Desert. It is somewhat common in open desert habitats during the winter. Brewer's sparrow feeds on insects and seeds on the ground or in low shrubs. This species primarily breeds from May through August with a peak in June. One individual Brewer's sparrow was observed within the Study Area, thus this species can be considered present, although in low densities, within the Study Area.

***Corynorhinus townsendii* (Townsend's big-eared bat), *Myotis ciliolabrum* (Western small-footed myotis bat), and *Tadarida brasiliensis* (Brazilian free-tailed bat)** are BLM-sensitive, State-protected species that roost in caves, mines, and on cliffs, none of which occur within the Study Area but may occur in nearby mountains located in the foothills of the McCullough Range approximately three miles west of the Study Area. These species have a low potential (foraging only) to occur within the Study Area.

***Vulpes macrotis* (desert kit fox)** is a State-protected species and classified by the NNHP as vulnerable to decline because it is rare throughout its range. Kit foxes are primarily carnivorous and prey on black-tailed jackrabbits, desert cottontails, small mammals, insects, reptiles (sometimes small desert tortoises, and birds [including eggs]). They typically dig burrows and dens in open, level areas with loose-textured, sandy and loamy soils. These burrows may also be used by other species including burrowing owls. Fifteen den complexes with sign of recent and historical use were observed within the Study Area, thus this species can be considered present (Figure 3).

4.0 RECOMMENDED PROTECTION MEASURES

The Clark County Department of Comprehensive Planning Coordination should be contacted to determine the applicability of the Multiple Species Habitat Conservation Plan (MSHCP) and associated take authorizations for desert tortoise and other covered species. Further coordination between Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), and Nevada Department of Wildlife (NDOW) may be necessary to determine the full scope of required permitting, implementation of specific protection measures, and/or compensatory mitigation. In lieu of full MSHCP coverage, formal consultation (Section 7 of the Federal Endangered Species Act) between the BLM and USFWS may be necessary to address impacts to desert tortoise. The Biological Assessment and resulting Biological Opinion (BiOp) would provide specific conditions and requirements that may supersede the measures described in this report. The following measures are consistent with recent conditions of other large-scale renewable energy projects subject in the Mojave Desert. Final protection measures would be developed in coordination with and agreed to by the regulatory agencies.

4.1 Desert Tortoise Protection Measures

The following measures are typical of conditions of a BiOp addressing take of desert tortoise.

Lead Biologist

A Lead Biologist should be designated for the Project and should be responsible for all aspects of clearance surveys, monitoring, desert tortoise translocation, contacts with agency personnel, reporting, and long-term monitoring and reporting.

Exclusion Fencing

Prior to beginning clearance surveys, desert tortoise exclusion fencing should be constructed in specified areas consistent with clearance survey areas. The Solar Farm site should be completely fenced with security and desert tortoise exclusion fencing, including desert tortoise exclusion gates at access points. Fence installation should be monitored as a linear component. Exclusion fencing should be maintained over the course of construction and operations, as necessary.

Preconstruction Clearance Surveys

Clearance surveys should be conducted consistent with the USFWS Desert Tortoise Field Manual and current translocation guidance (USFWS 2009 and 2010b). If a desert tortoise or active burrow is found within a planned area of construction, surveys should stop at that time until the tortoise is translocated in the active season. If two complete passes are completed in a construction area (north-south and east-west) without a desert tortoise being found, construction may commence within that area outside of the active season. Fencing should continue to be checked on a daily basis throughout construction.

Translocation

A Desert Tortoise Translocation Plan should be prepared for the Project. The purpose of the plan is to describe the process of translocation, minimize mortality of desert tortoises, and assess the effectiveness of the translocation effort through a long-term monitoring program. Injured tortoises should be transported to a rehabilitation facility approved by the USFWS and NDOW. Tortoises found recently killed should be salvaged and transported to a veterinary pathologist, who is familiar with desert tortoise and approved by the USFWS and NDOW. Procedures for salvaging and transport should generally follow Guidelines for the Field Evaluation of Desert Tortoise Health and Disease (Berry and Christopher 2001). Detailed health assessments on all live tortoises should be conducted following current USFWS guidance by individuals approved and permitted by the USFWS and NDOW to conduct such assessments. Detailed health assessments should be performed prior to translocation and repeated periodically during long-term monitoring. Any individual tortoise that exhibits clinical signs of Upper Respiratory Tract Disease (URTD) should be transported to the Desert Tortoise Conservation Center (DTCC) near Las Vegas, Nevada for further evaluation. Tortoises should only be prepared for transport to the DTCC by individuals authorized for these activities under the BiOp. The tortoise should be transported to the DTCC within 48 hours of it being discovered with clinical signs of disease.

Common Raven Management Plan

A Common Raven Management Plan should be developed for the Project. The primary objective of the plan is to protect the juvenile and hatchling desert tortoises from predation by common ravens. This should be accomplished in part by eliminating or minimizing all aspects of human impact that attract ravens (i.e., garbage, surface water, animal and plant waste materials, perching sites, nesting sites, and roosting sites). The secondary objective is to avoid lethal removal of ravens by installing passive bird deterrents. The final objective of this plan is to comply with the regional management actions of the agencies cooperating in the effort to promote tortoise recovery pursuant to the Final Environmental Assessment to Implement a Desert Tortoise Recovery Plan Task: Reduce Common Raven Predation on the Desert Tortoise (USFWS 2008).

4.2 Additional Biological Resource Protection Measures

Integrated Weed Management Plan

An Integrated Weed Management Plan (IWMP) should be prepared to reduce and/or eliminate the propagation and further spread of noxious and invasive weeds in the Mojave Desert due to construction, operation and decommissioning of the Project. The objectives of the IWMP would be as follows:

- Identify weed species currently present within the Project components,
- Identify weeds not seen on the Project components that may have the potential to be present in the Project area and have the potential to invade the Project site due to construction activities,

- Identify construction and maintenance activities that may increase the presence of weeds or introduce new weed species on and adjacent to the Project components, and
- Specify steps that should be taken to ensure that the presence of weed populations on and adjacent to the Project components should not increase because of construction activities. These steps should be intended to: (1) prevent weeds not currently found on the Project site from becoming established there, and (2) prevent weeds already present on the site from spreading to other areas.

Vegetation Management Plan

The Vegetation Management Plan (VMP) will address impacts to native vegetation and protected cactus species during construction and maintenance of the solar facility. The Plan will include a discussion of the limited grading approach to ground preparation and include procedural descriptions for transplantation, restoration, and reclamation of affected areas. Objectives of the VMP include:

- Present methods of salvage and transplantation of succulent/yucca/cactus,
- Describe restoration of temporarily disturbed areas using salvaged topsoil and certified weed free native vegetation,
- Specify proper seasons and timing of restoration and reclamation activities, and
- Detail monitoring and reporting goals.

4.3 General Measures

This section describes a range of design features, construction and operation best management practices (BMPs), and avoidance practices that when implemented as part of Project construction and/or operation, should collectively avoid, reduce or eliminate potential adverse effects to biological resources. Each category of features, practices and plans is described separately below.

Environmental Inspection and Compliance Monitoring Program and Plan

A comprehensive Environmental Inspection and Compliance Monitoring Program and Plan, covering both construction and operation and maintenance (O&M), should be developed. A qualified individual should be designated to serve as the Project Environmental Manager. The Environmental Manager should be responsible for:

- development and implementation of the overall Project compliance program,
- communication and coordination with the applicable regulatory agencies,
- ensuring compliance with the various conditions and requirements of permits and approvals,
- record keeping and reporting required by permits and approvals,
- ensuring that all applicable environmental plans are up to date,
- advising management of actual and potential compliance issues, and
- ensuring that Project planning takes appropriate account of compliance issues in advance.

Construction Related Plans

The following construction related plans should be developed, as necessary. These plans have specific objectives that would indirectly help reduce potential adverse effects to biological resources.

- Storm Water Pollution Prevention Plan
- Dust Control Plan
- Waste Management Plan
- Spill Prevention Control and Countermeasure Plan
- Hazardous Materials Management Plan
- Fire Prevention Plan

Construction Related BMPs

The following general measures should be implemented during construction, which would assist with reducing potential adverse effects to biological resources:

- Construction and O&M activities should be limited to daylight hours to the extent possible,
- Water required for construction purposes should not be stored in open containers or structures and should be transported throughout the site in enclosed water trucks,
- Water sources (such as wells) should be checked periodically by monitors to ensure they are not creating open water sources through leaking or consistently overfilling trucks,
- All vehicles leaking fuel or other liquids should be immediately removed to the staging area and repaired – all spills should be cleaned up promptly and disposed of correctly,
- All construction activities conducted outside the fenced areas should be monitored by a qualified biological monitor,
- Vegetation removal should be limited to the smallest area necessary,
- Construction traffic should remain on existing roads when possible – new roads, passing areas, and turning areas should be limited to permitted area of direct effect,
- Speed limits on all unpaved areas of the Project site should be a maximum of 15 miles per hour,
- Trash should always be contained within raven-proof receptacles and removed from the site frequently, including trash collected in vehicles in the field,
- No dogs or firearms should be allowed on the Project site during construction or O&M,
- Plant and wildlife collection by Project staff during construction or operation should be prohibited except as allowed by the Project's permits,

Worker Environmental Awareness Program

A formal Worker Environmental Awareness Program (WEAP) should be completed for every individual working on the Project site. All individuals completing the training should sign an attendance sheet and receive wallet cards and stickers to show they have completed this training. The training should include the following information and include photos of all resources:

- Discussion of the fragile desert ecosystem, vegetation and wildlife communities within and surrounding the Project site,
- Discussion of rare plant species and other sensitive species found within and surrounding the Project site,
- Desert tortoise ecology, threats, legal protections, permitting, and penalties (including both legal and imposed by Project permits),
- Project-specific protection measures, and
- Worker responsibilities, communication protocol, and monitor responsibilities, including the authority for monitors to halt Project activities if warranted.

4.4 Compensatory Mitigation

Consistent with BLM requirements and conditions likely to be imposed on the Project by NDOW and USFWS, areas of desert tortoise habitat should be acquired to partially offset the potential adverse effects of the Project. A Compensatory Mitigation Plan, or Habitat Compensation Plan, would be a valuable tool to document the details of mitigation opportunities. Land acquisition should be considered the first priority; however, it is evident that the land purchase opportunities within the northwestern Mojave Desert are limited. Supplemental mitigation actions should be considered. These actions could be in the form of habitat restoration and enhancement throughout the Mojave Desert. Continued coordination with the BLM, NDOW, and USFWS would be beneficial in identifying all possible compensatory mitigation opportunities as they arise.

5.0 REFERENCES

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APPENDIX A
Site Photographs

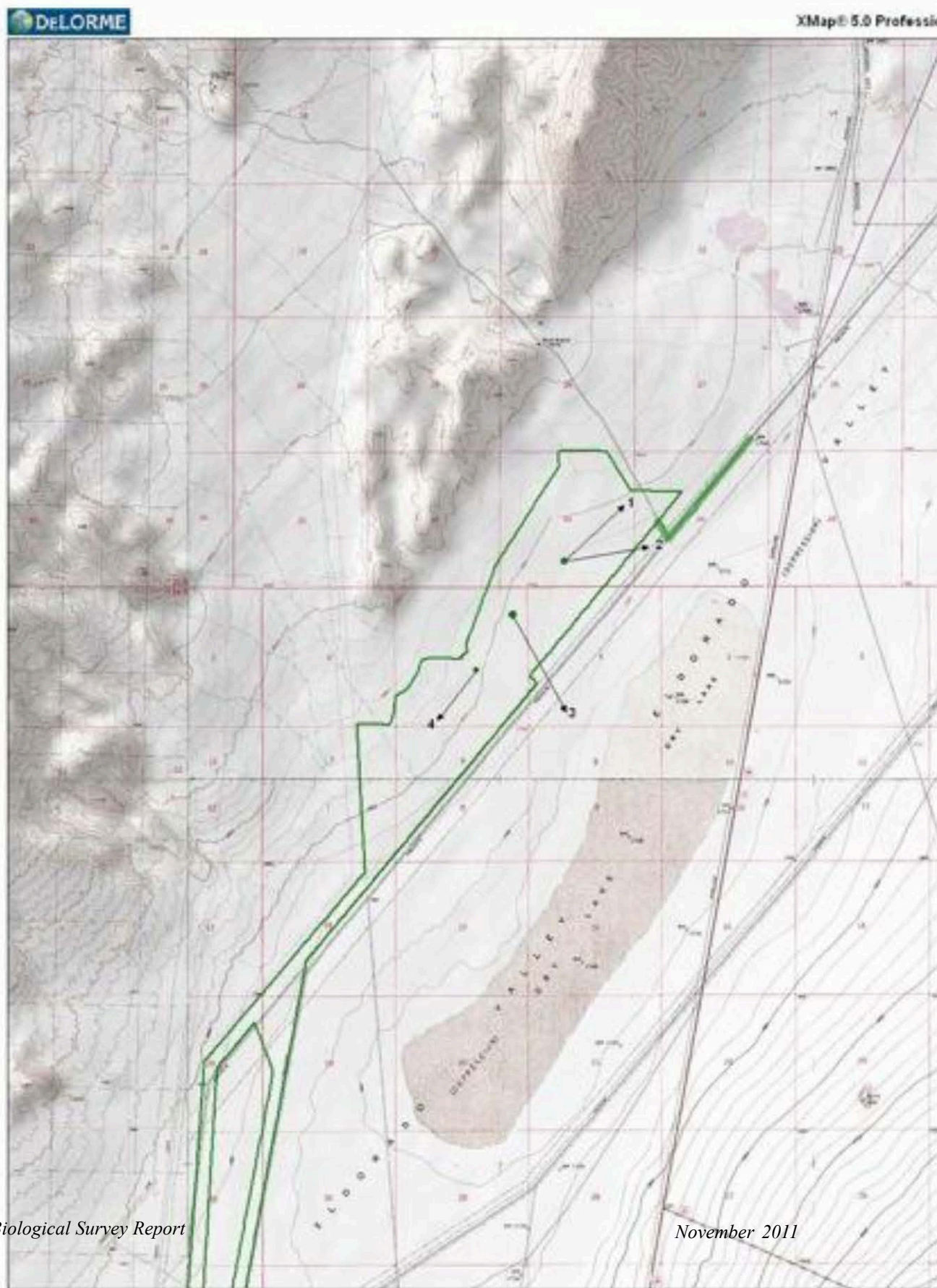




Photo 1 - *Larrea tridentata*-*Ambrosia dumosa* Shrubland Alliance with rocky soils.



Photo 2 - *Larrea tridentata*-*Ambrosia dumosa* Shrubland Alliance with sandy soils.



Photo 3 – Desert pavement and historical disturbance.



APPENDIX B
Plant Species Detected

Family	Genus	Species	Var./Sp.	Common name
Asclepiadaceae	Asclepias	erosa		desert milkweed
	Cynanchum	utahense		Utah vine milkweed
Asteraceae	Acamptopappus	sphaerocephalus	var. hirtellus	goldenhead
	Adenophyllum	cooperi		Cooper's dogweed
	Ambrosia	dumosa		white bur-sage
	Ambrosia	salsola		cheesebush
	Atrichoseris	platyphylla		Gravel ghost
	Baileya	pleniradiata		woolly marigold
	Bebbia	junceae	var. aspera	sweetbush
	Brickellia	incana		
	Calycoseris	wrightii		
	Chaenactis	carphoclinia	var. carphoclinia	pebble pincushion
	Chaenactis	fremontii		Fermont's pincushion
	Eriophyllum	wallacei		Wallace's wooly daisy
	Malacothrix	coulteri		
	Malacothrix	glabrata		desert dandylion
	Monoptilon	bellidiforme		desert star
	Psathyrotes	annua		
	Rafinesquia	neomexicana		desert chicory
	Stephanomeria	pauciflora	var. pauciflora	wirelettuce
	Stylocline	micropoides		woollyhead neststraw
	Xylorhiza	tortifolia	var. tortifolia	Mojave aster
Boraginaceae	Amsinckia	tessellata	var. tessellata	devil's lettuce
	Cryptantha	angustifolia		Panamint cryptantha
	Cryptantha	maritima		Guadalupe cryptantha
	Cryptantha	micrantha		redroot crytantha
	Cryptantha	nevadensis		Nevada crytantha
	Cryptantha	pterocarya		wing nut cryptantha
	Pectocarya	heterocarpa		chuckwalla pectocarya
	Pectocarya	platycarpa		broadfruit combseed
Brassicaceae	Tiquilia	plicata		fanleaf crinklemat
	Brassica	tournefortii		
	Descurainia	pinnata	ssp. glabra	western tansymustard
	Dithyrea	californica		spectaclepod
	Lepidium	densiflorum		peppergrass
	Lepidium	lasiocarpum	var. lasiocarpum	shaggyfruit pepperweed
	Lesquerella	tenella		
	Streptanthella	longirostris		longbeak streptanthella
Cactaceae	Cylindropuntia	acanthocarpa	var. coloradensis	buckhorn cholla
	Cylindropuntia	basilaris	var. basilaris	beavertail
	Cylindropuntia	echinocarpa		silver cholla
	Cylindropuntia	ramosissima		pencil cholla
	Echinocactus	polycephalus		Cottontop cactus
	Ferocactus	cylindraceus	var. cylindraceus	barrelcactus
	Mammillaria	tetrancistra		Common fishhook cactus
	Sclerocactus	johnsonii		Johnson's fishhook cactus
Campanulaceae	Nemacladus	glanduliferus	var. orientalis	glandular threadplant
Chenopodiaceae	Atriplex	polycarpa		cattlespinach

Family	Genus	Species	Var./Sp.	Common name
	Chenopodium	album		Pigweed
	Salsola	tragus		Russian thistle
Cucurbitaceae	Cucurbita	palmata		Coyote melon
Cuscutaceae	Cuscuta	californica		
Euphorbiaceae	Chamaesyce	polycarpa		
Fabaceae	Acacia	greggii		catclaw acacia
	Dalea	mollis		
	Senna	armata		
Geraniaceae	Erodium	cicutarium		filaree
	Erodium	texanum		Texas filaree
Hydrophyllaceae	Nama	demissum	var. demissum	purplemat
	Phacelia	crenulata	var. crenulata	
	Phacelia	ivesiana		
Krameriaceae	Krameria	erecta		white rhatany
Liliaceae	Androstephium	breviflorum		pink funnel lily
Loasaceae	Mentzelia	obscura		small flowered blazing star
Malvaceae	Eremalche	exilis		white mallow
Onagraceae	Camissonia	boothii	var. condensata	Booth's evening primrose
	Camissonia	brevipes	var. brevipes	yellow cups
	Camissonia	claviformis	ssp. aurantiaca	brown-eyed primrose
	Camissonia	refracta		narrow-leafed suncup
	Oenothera	primiveris	ssp. bufonis	
Orobanchaceae	Orobanche	cooperi		Cooper's broomrape
Papaveraceae	Eschscholzia	glyptosperma		desert gold poppy
	Eschscholzia	minutiflora		
Poaceae	Aristida	purpurea	var. parishii	purple threeawn
	Bromus	madritensis	ssp. rubens	red brome
	Bromus	tectorum		June grass
	Pleuraphis	rigida		galleta grass
	Schismus	barbatus		Mediterranean grass
	Vulpia	octoflora	var. octoflora	six weeks fescue
Polemoniaceae	Gilia	scopulorum		rock gilia
	Gilia	sinuata		
	Ipomopsis	polycladon		
	Langloisia	setosissima	ssp. setosissima	Great Basin sunbonnet
	Linanthus	demissus		desert linanthus
	Linanthus	jonesii		Jones' linanthus
	Loeseliastrum	schottii		Schott's calico
Polygonaceae	Chorizanthe	brevicornu	var. bervicornu	brittle spineflower
	Chorizanthe	rigida		rigid spineflower
	Eriogonum	deflexum	var. deflexum	skeleton weed
	Eriogonum	pusillum		yellow turban
	Eriogonum	reniforme		kidneyleaved buckwheat
	Eriogonum	thomasii		Thomas' buckwheat
	Eriogonum	trichopes	var. trichopes	little desert buckwheat
Zygophyllaceae	Larrea	tridentata		creosote bush

APPENDIX C
Wildlife Species Detected

Common Name	Scientific Name	Sign
Birds		
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	O,V
Barn Swallow	<i>Hirundo rustica</i>	O
Black-throated Sparrow	<i>Amphispiza bilineata</i>	O,V
Brewer's Sparrow	<i>Spizella breweri</i>	O
Brown-headed Cowbird	<i>Molothrus ater</i>	O
Burrowing Owl	<i>Athene cunicularia</i>	B, S, F
Common Poorwill	<i>Phalaenoptilus nuttallii</i>	O
Common Raven	<i>Corvus corax</i>	O,V
Horned Lark	<i>Eremophila alpestris</i>	O,V
House Finch	<i>Carpodacus mexicanus</i>	O,V
Lesser Nighthawk	<i>Chordeiles acutipennis</i>	O,V
Loggerhead Shrike	<i>Lanius ludovicianus</i>	O
Mourning Dove	<i>Zenaida macroura</i>	O,V
Prairie Falcon	<i>Falco mexicanus</i>	O
Red-tailed Hawk	<i>Buteo jamaicensis</i>	O,V
Rock Pigeon	<i>Columba livia</i>	O
Western Kingbird	<i>Tyrannus verticalis</i>	O
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	O,V
Yellow-Headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	O
Reptiles		
Desert Tortoise	<i>Gopherus agassizii</i>	O, B, T, S, C
Desert Horned Lizard	<i>Phrynosoma platyrhinos</i>	O
Desert Iguana	<i>Dipsosaurus dorsalis</i>	O
Gopher Snake	<i>Pituophis catenifer deserticola</i>	O
Long-nosed Leopard Lizard	<i>Gambelia wislizenii</i>	O
Mojave Green Rattlesnake	<i>Crotalus scutulatus scutulatus</i>	O
Side-blotched Lizard	<i>Uta stansburiana</i>	O
Sidewinder	<i>Crotalus cerastes</i>	O
Western Whiptail	<i>Cnemidophorus tigris</i>	O
Zebra-tailed Lizard	<i>Callisaurus draconoides</i>	O
Mammals		
Antelope Ground Squirrel	<i>Ammospermophilus leucurus</i>	O
Black-tailed Jackrabbit	<i>Lepus californicus</i>	O, T, S
Desert Kit Fox	<i>Vulpes macrotis arsipus</i>	B, T, S

B = Burrow, C = Carcass, F = Feathers, O = Observed, S = Scat, T = Tracks, V = Vocalization

APPENDIX D
Nevada Natural Heritage Program Correspondence

LEO DROZDOFF
Director

Department of Conservation
and Natural Resources

JENNIFER E. NEWMARK
Administrator

BRIAN SANDOVAL
Governor



Nevada Natural Heritage Program
Richard H. Bryan Building
901 S. Stewart Street, suite 500
Carson City, Nevada 89701-5000
U.S.A.

tel: (775) 684-2900
fax: (775) 684-2909



STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
Nevada Natural Heritage Program
<http://heritage.nv.gov>

04 May 2011

Kent W. Hughes
K.W. Hughes Consulting
424 Elder Dr.
Claremont, CA 91711

RE: Data request received 03 May 2011

Dear Mr. Hughes:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or At Risk plant and animal taxa recorded within or near the Copper Mountain III Project area. We searched our database and maps for the following five kilometer radius around:

Township 23S Range 63E Sections 33 and 34
Township 24S Range 62E Sections 24, 25 and 36
Township 24S Range 63E Sections 05, 07, 08, 18, 19 and 31
Township 25S Range 62E Section 12
Township 25S Range 63E Section 06

The enclosed printout lists the taxa recorded within the given area. Please be aware that habitat may also be available for *Littlefield preussii* var. *laxiflorus*, a Taxon determined to be Critically Imperiled by the Nevada Natural Heritage Program (NNHP), and the rosy twotone beardtongue, *Penstemon bicolor* ssp. *roseus*, a Taxon Determined to be Vulnerable by the NNHP. The Nevada Department of Wildlife (NDOW) manages, protects, and restores Nevada's wildlife resources and associated habitat. Please contact Chet Van Dellen, NDOW GIS Coordinator (775.688.1565) to obtain further information regarding wildlife resources within and near your area of interest. Removal or destruction of state protected flora species (NRS 527.010) requires a special permit from Nevada Division of Forestry (NRS 527.270).

Please note that our data are dependent on the research and observations of many individuals and organizations, and in some cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

November 2011
Sincerely,

Appendix B Biological Survey Report

At Risk Taxa Recorded Near the Copper Mountain III Project Area in Clark Co.

Compiled by the Nevada Natural Heritage Program for K.W. Hughes Consulting

04 May 2011

Appendix B Biological Survey Report

<u>Scientific name</u>	<u>Common name</u>	<u>Usfws</u>	<u>Blm</u>	<u>Usfs</u>	<u>State</u>	<u>Strank</u>	<u>Grank</u>	<u>UTM E</u>	<u>UTM N</u>	<u>Prec</u>	<u>Last observed</u>
<i>Phrynosoma m. agassizii</i>	desert tortoise (Mojave Desert pop.)	LT	S	T	YES	S2S3	G4	681267.75	3961449.70	S	1987-1990
<i>Phrynosoma m. agassizii</i>	desert tortoise (Mojave Desert pop.)	LT	S	T	YES	S2S3	G4	684718.15	3975424.35	S	1987-1990
<i>Phrynosoma m. agassizii</i>	desert tortoise (Mojave Desert pop.)	LT	S	T	YES	S2S3	G4	683242.97	3969166.38	S	1987-1990
<i>Phrynosoma m. agassizii</i>	desert tortoise (Mojave Desert pop.)	LT	S	T	YES	S2S3	G4	684114.40	3964683.64	S	1987-1990

Nevada Wildlife Service (Usfws) Categories for Listing under the Endangered Species Act:

T Listed Threatened - likely to be classified as Endangered in the foreseeable future if present trends continue

and Management (Blm) Species Classification:

Nevada Special Status Species - USFWS listed, proposed or candidate for listing, or protected by Nevada state law

Nevada Forest Service (Usfs) Species Classification:

Region 4 and/or Region 5 Threatened species

Protected (State) Species Classification:

Species protected under NRS 501.

Time of Map Occurrence:

Decision, or radius of uncertainty around latitude/longitude coordinates:

Seconds: within a three-second radius

Minutes: within a one-minute radius, approximately 2 km or 1.5 miles

General: within about 8 km or 5 miles, or to map quadrangle or place name

Nevada Natural Heritage Program Global (Grank) and State (Strank) Ranks for Threats and/or Vulnerability:

G	Global rank indicator, based on worldwide distribution at the species level
T	Global trinomial rank indicator, based on worldwide distribution at the infraspecific level
S	State rank indicator, based on distribution within Nevada at the lowest taxonomic level
1	Critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats, or other factors
2	Imperiled due to rarity or other demonstrable factors
3	Vulnerable to decline because rare and local throughout its range, or with very restricted range
4	Long-term concern, though now apparently secure; usually rare in parts of its range, especially at its periphery
5	Demonstrably secure, widespread, and abundant
A	Accidental within Nevada
B	Breeding status within Nevada (excludes resident taxa)
H	Historical; could be rediscovered
N	Non-breeding status within Nevada (excludes resident taxa)
Q	Taxonomic status uncertain
U	Unrankable
Z	Enduring occurrences cannot be defined (usually given to migrant or accidental birds)
?	Assigned rank uncertain

Appendix C. Agency Correspondence

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REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

May 29, 2009

Regulatory Division (SPK-2009-0045)

AECOM
Attn: Carl Lindner
1220 Avenida Acaso
Camarillo, California 93012-8738

Dear Mr. Lindner:

We are responding to your request for an approved jurisdictional determination for the El Dorado Energy Project. This approximately 60-acre site is located in Section 7, Township 25 South, Range 63 East, Section 12, Township 25 South, Range 62 East, Mount Diablo Base and Meridian, City of Boulder, Clark County, Nevada.

The water identified as "Dry Lake" on the above drawing is an intrastate isolated water with no apparent interstate or foreign commerce connection. As such, this water is not currently regulated by the Corps of Engineers. This disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act. Other Federal, State, and local laws may apply to your activities.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331.

A Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form is enclosed. If you request to appeal this determination you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESP-DPS-O, 1455 Market Street, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the NAP. Should you decide to submit an RFA form, it must be received at the above address by 60 days from the date of this letter. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

-2-

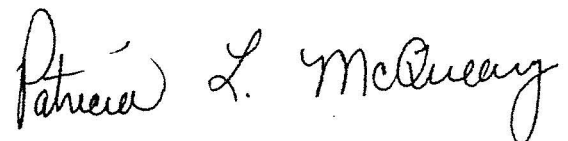
You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This determination has been conducted to identify the limits of Corps of Engineers' Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey on our website under *Customer Service Survey*.

Please refer to identification number SPK-2009-0045 in any correspondence concerning this project. If you have any questions, please contact Patricia L. McQueary at our St. George Regulatory Office, 321 N. Mall Drive, Suite L-101, St. George, UT 84790, email patricia.l.mcqueary@usace.army.mil, or telephone 435-986-3979.

Sincerely,



for
Jason Gipson
Chief, Nevada-Utah Branch Office
533 West 2600 Suite 150
Bountiful, Utah 84010-0619

Enclosure(s)
Appeals Form
JD Package

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Aecom for Semptra Global		File No.: SPK-2009-0045-SG	Date: May 29, 20
Attached is:		See Section below	
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A	
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B	
	PERMIT DENIAL	C	
X	APPROVED JURISDICTIONAL DETERMINATION	D	
	PRELIMINARY JURISDICTIONAL DETERMINATION	E	

SECTION I - The following identifies your rights and options regarding an administrative appeal of the decision. Additional information may be found at <http://www.usace.army.mil/inet/functions/cw/cecwo/r> Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the DISTRICT engineer for authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. You may also accept the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request the permit be modified accordingly. You must complete Section II of this form and return the form to the DISTRICT engineer. Your objections must be received by the DISTRICT engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the DISTRICT engineer will evaluate your objections and may (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the DISTRICT engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the DISTRICT engineer for authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. You may also accept the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse). This form must be received by the DIVISION engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse). This form must be received by the DIVISION (not district) engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD based on new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse). This form must be received by the DIVISION engineer within 60 days of the date of this notice. Exception: If you have new information, you must submit it to the DISTRICT engineer within 60 days of the date of this notice.

November 20

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding a preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealable) by completing Section II of this form and sending the form to the DIVISION (not district) engineer (address on reverse). Also, you may provide new information for further consideration by the Corps.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to the initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to conduct the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

DISTRICT ENGINEER

Sacramento District, Corps of Engineers
Attn: Patricia L. McQueary, Project Manager, Regulatory Division
321 N. Mall Drive, Suite L-101, St. George, UT 84790
435-986-3979, FAX 435-986-3981

(Use this address for submittals to the **DISTRICT ENGINEER**)

If you only have questions regarding the appeal process contact:

DIVISION ENGINEER

Army Engineer Division, South Pacific, CESPD-CM-O
Attn: Tom Cavanaugh, Administrative Appeal Review
Corps of Engineers, CESPD-PDS-O, 1455 Market Street
San Francisco, CA 94103-1399 (415-503-6574, FAX 415-503-6575)

(Use this address for submittals to the **DIVISION ENGINEER**)

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government personnel, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of a site investigation, and will have the opportunity to participate in all site investigations.

Appendix C Agency Correspondence

November 2011

Date:

Telephone number:

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 5-May-2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: St. George, El Dorado Energy, SPK-2009-00045 (Washes 1-5)

C. PROJECT LOCATION AND BACKGROUND INFORMATION: Southwest of Boulder City
 State: Nevada County/parish/borough: Clark City:
 Center coordinates of site (lat/long in degree decimal format): Lat. 35.788248° N, Long. -114.992393° W.
 Universal Transverse Mercator:

Name of nearest waterbody: Dry Lake

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: NA

Name of watershed or Hydrologic Unit Code (HUC): 16060015

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: 13-April-2009

☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.

Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

☐ TNWs, including territorial seas

☐ Wetlands adjacent to TNWs

☐ Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs

☐ Non-RPWs that flow directly or indirectly into TNWs

☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

☐ Impoundments of jurisdictional waters

☒ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: 3118 linear feet: width (ft) and/or acres.

Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: Established by OHWM.

Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):³

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
 Explain: The site is located in Eldorado Valley, located south of Henderson, Nevada. This 530 square mile area is an intrastate hydrologic basin and is isolated from TNWs by the McCullough Range on the west, the Eldorado Mountains on the east, the Highland Range on the south, and the Black Hills and River Mountains on the north. Several ephemeral washes traverse the project site, runoff from which drain into Dry Lake which does exhibit an ordinary high water mark. However, these hydrographic features do not cross state lines and are not used for interstate commerce. Please see attached letter and maps for further information.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW:

Summarize rationale supporting determination:

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent":

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD requires the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both on and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: **Pick List**

Drainage area: **Pick List**

Average annual rainfall: inches

Average annual snowfall: inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

☐ Tributary flows directly into TNW.

☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.

Project waters are **Pick List** river miles from RPW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Project waters are **Pick List** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁵:

Tributary stream order, if known:

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the area of the project.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: feet
 Average depth: feet
 Average side slopes: **Pick List**.

Primary tributary substrate composition (check all that apply):

☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☐ Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List**. Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

Tributary has (check all that apply):

☐ Bed and banks
☐ OHWM⁶ (check all indicators that apply):
☐ clear, natural line impressed on the bank ☐ the presence of litter and debris
☐ changes in the character of soil ☐ destruction of terrestrial vegetation
☐ shelving ☐ the presence of wrack line
☐ vegetation matted down, bent, or absent ☐ sediment sorting
☐ leaf litter disturbed or washed away ☐ scour
☐ sediment deposition ☐ multiple observed or predicted flow events
☐ water staining ☐ abrupt change in plant community
☐ other (list):
☐ Discontinuous OHWM.⁷ Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by: ☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects ☐ survey to available datum;
☐ fine shell or debris deposits (foreshore) ☐ physical markings;
☐ physical markings/characteristics ☐ vegetation lines/changes in vegetation types.
☐ tidal gauges
☐ other (list):

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.)

Explain:

Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):

☐ Riparian corridor. Characteristics (type, average width):
☐ Wetland fringe. Characteristics:

⁶A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

- ☐ Habitat for:
- ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

☐ Directly abutting

☐ Not directly abutting

☐ Discrete wetland hydrologic connection. Explain:

☐ Ecological connection. Explain:

☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):

☐ Riparian buffer. Characteristics (type, average width):

☐ Vegetation type/percent cover. Explain:

☐ Habitat for:

☐ Federally Listed species. Explain findings:

☐ Fish/spawn areas. Explain findings:

☐ Other environmentally-sensitive species. Explain findings:

☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon to support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
☐ TNWs: linear feet width (ft). Or, acres.
☐ Wetlands adjacent to TNWs: acres.
2. **RPWs that flow directly or indirectly into TNWs.**
☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
 Identify type(s) of waters:

3. **Non-RPWs⁸ that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly into a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
 Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:
☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.⁹

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰

- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain:
☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- ☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
 Identify type(s) of waters:
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

⁹ To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

¹⁰ Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

- ☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
- ☒ Other: (explain, if not covered above): **This is a dry lake bed and associated washes that do not cross or serve as state boundaries. This area does not meet the criteria for a "wetland" under the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate regional supplements. It is unlikely that it would have been considered jurisdictional under the MBR because of its lack of food chain support/biological inputs and lack of organic matter. The dry lake bed is a "closed hydrologic system".**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource:
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where a finding is required for jurisdiction (check all that apply):

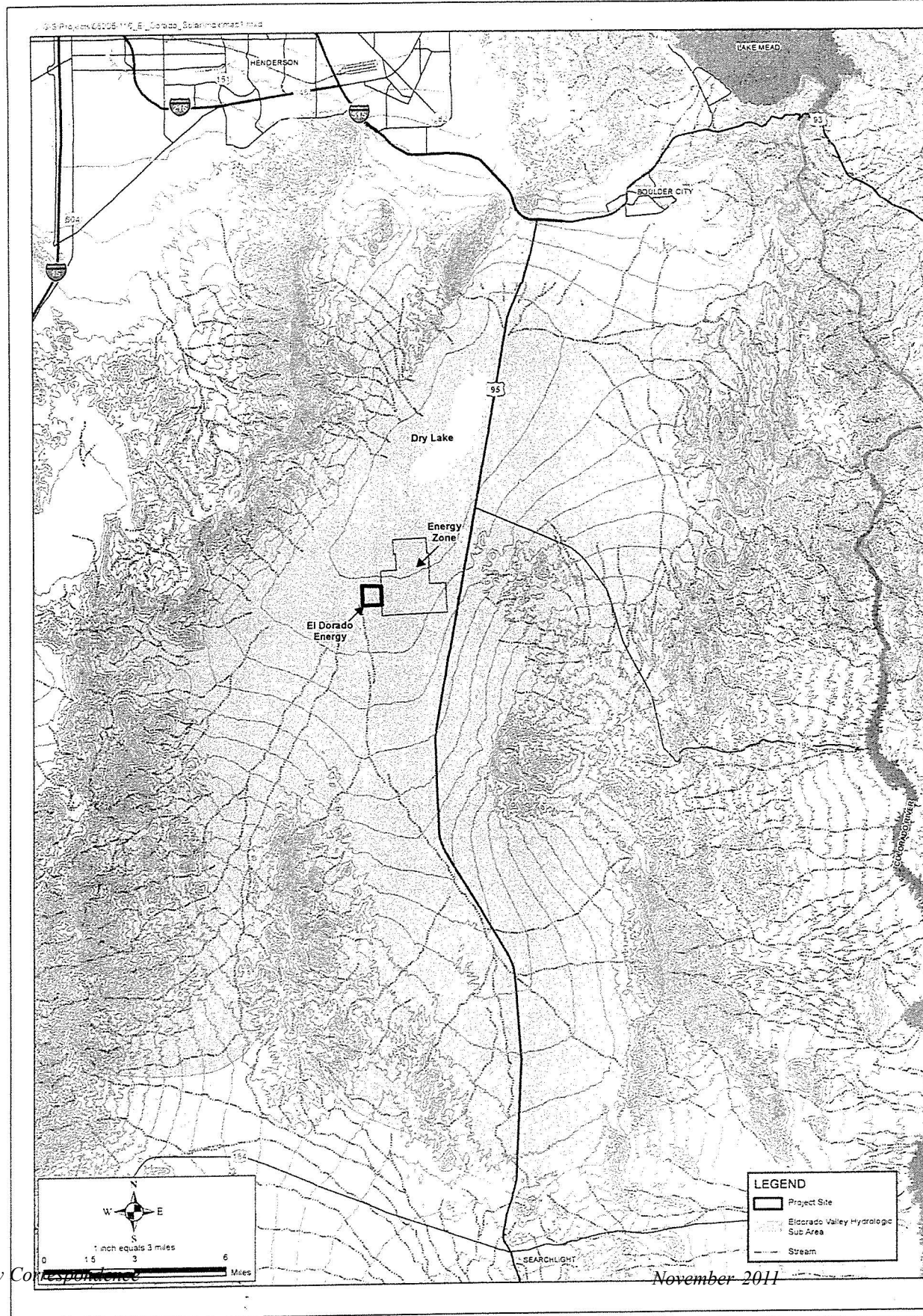
- ☒ Non-wetland waters (i.e., rivers, streams): **3118** linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource:
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
- ☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
- ☐ Office concurs with data sheets/delineation report.
- ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps:
- ☐ Corps navigable waters' study:
- ☒ U.S. Geological Survey Hydrologic Atlas:
- ☐ USGS NHD data.
- ☒ USGS 8 and 12 digit HUC maps.
- ☒ U.S. Geological Survey map(s). Cite scale & quad name: 7.5min; 1:24,000 - Sloan SE, Boulder City SW.
- ☒ USDA Natural Resources Conservation Service Soil Survey. Citation:
- ☒ National wetlands inventory map(s). Cite name: <http://wetlandsfws.er.usgs.gov> - USFWS Wetlands Online Mapper.
- ☐ State/Local wetland inventory map(s):
- ☐ FEMA/FIRM maps:
- ☐ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- ☐ Photographs: ☐ Aerial (Name & Date):
- or ☐ Other (Name & Date):
- ☐ Previous determination(s). File no. and date of response letter:
- ☐ Applicable/supporting case law:
- ☐ Applicable/supporting scientific literature:
- ☒ Other information (please specify): Clark County Regional Flood Control District Map.

B. ADDITIONAL COMMENTS TO SUPPORT JD: The proposed project is located in Eldorado Valley, located south of Henderson Nevada. This 530 square mile area is an intrastate hydrologic basin and is isolated from TNWs by the McCullough Range on the west, the Eldorado Mountains on the east, the Highland Range on the south, and the Black Hills and River Mountains on the north. Several ephemeral washes traverse the project site, runoff from which drains into Dry Lake which does exhibit an ordinary highwater mark. However, the hydrographic features do not cross state lines and are not used for interstate commerce. Please see attached letter and maps for further information.





ORM2

Layers

Expand All Collapse All Redraw

Regulatory

☐ ORM Project Locations

☒ ORM Waters of the US

USACE

DoD

Federal

World Base Map

Imagery

Legend

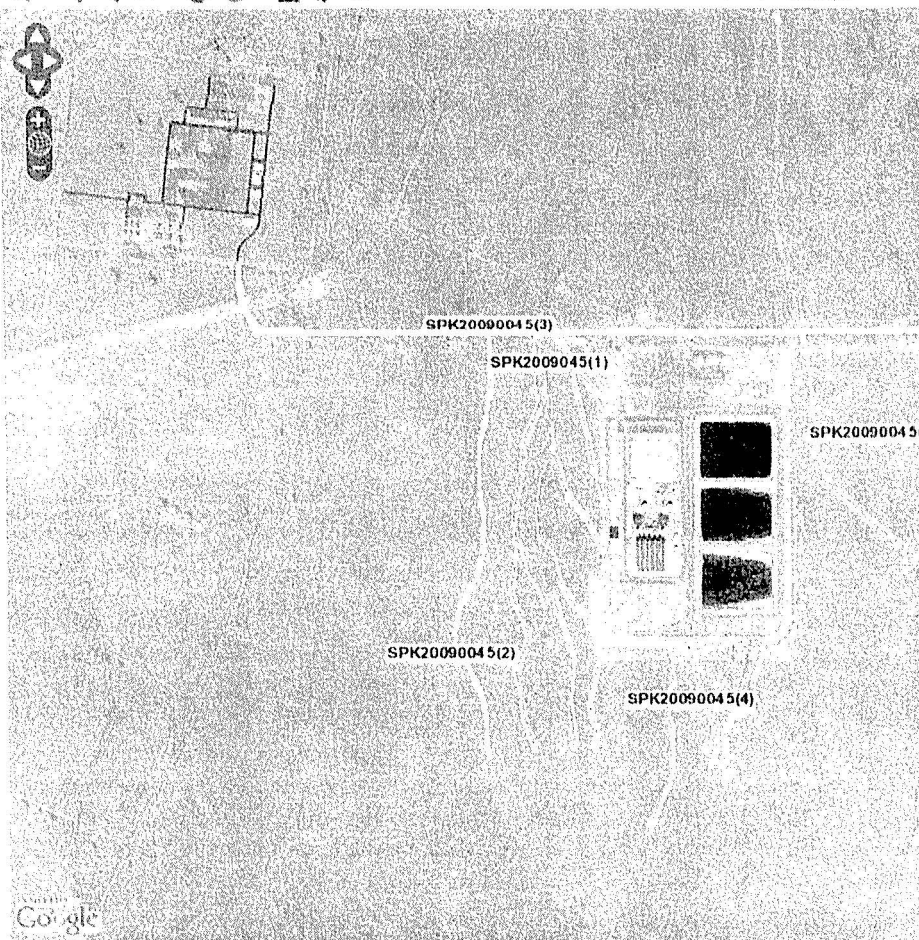
Search

Query Results



InfoLayer

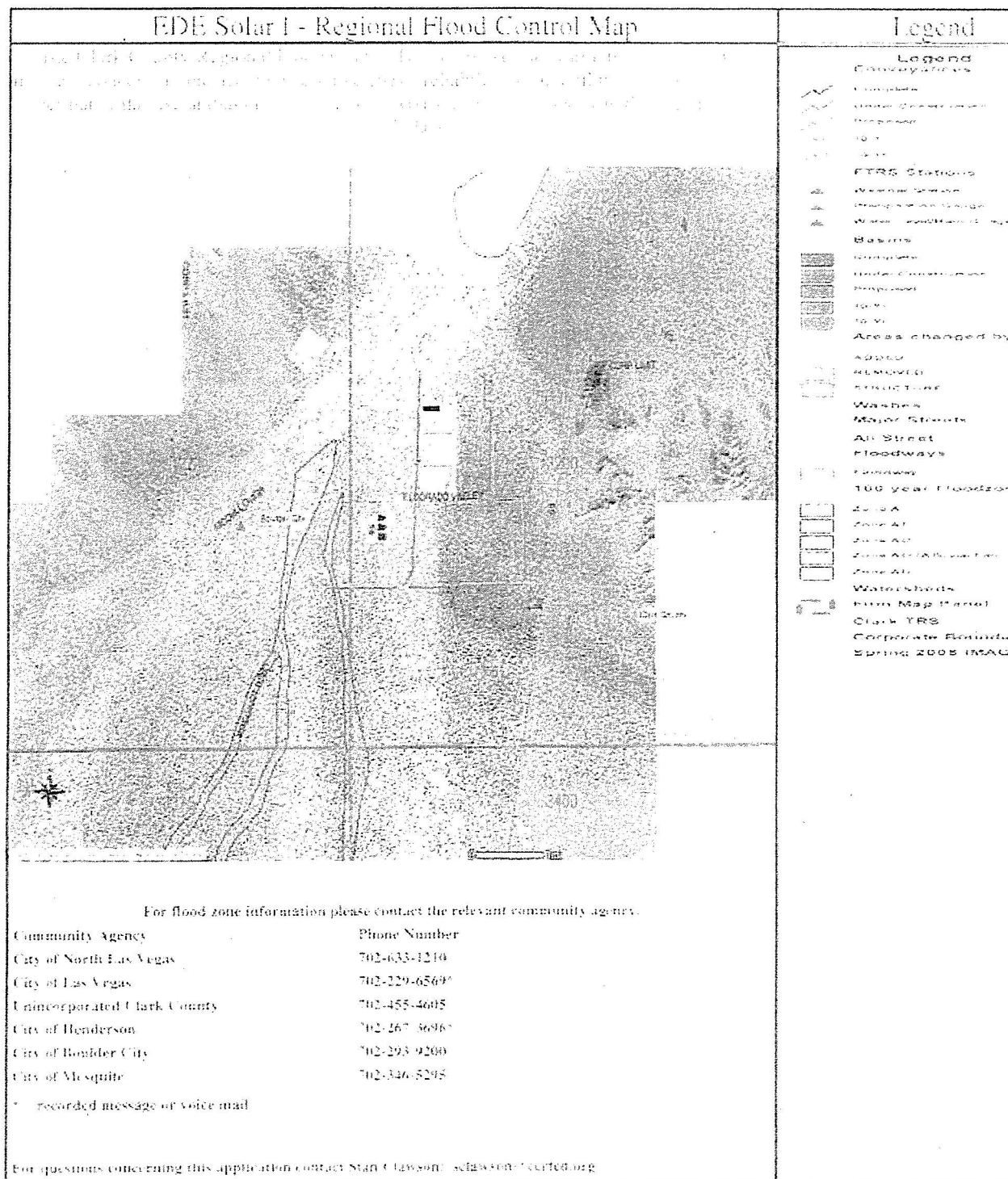
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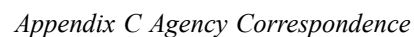


Map Ready

Area Units: Acres

Dist Units: M





SPK-2009-0045-SG

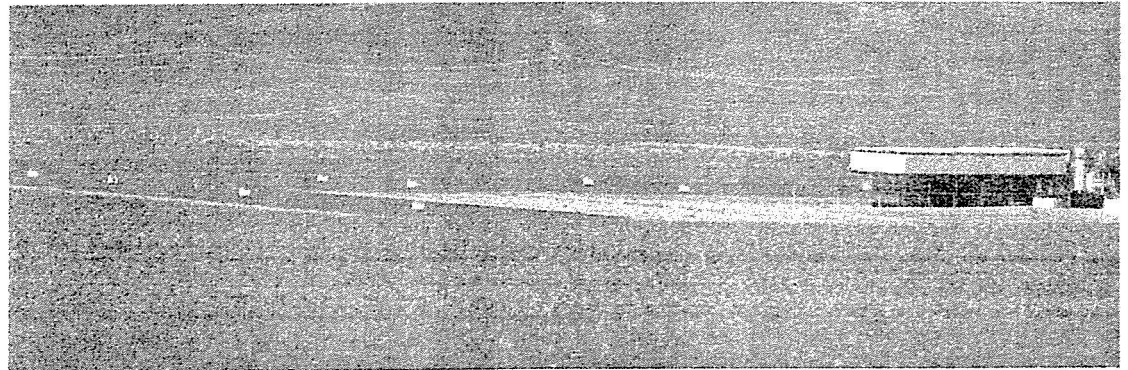
El Dorado Energy Solar I Expansion, Boulder City Energy Zone, Nevada

Jurisdictional Determination for Dry Lake

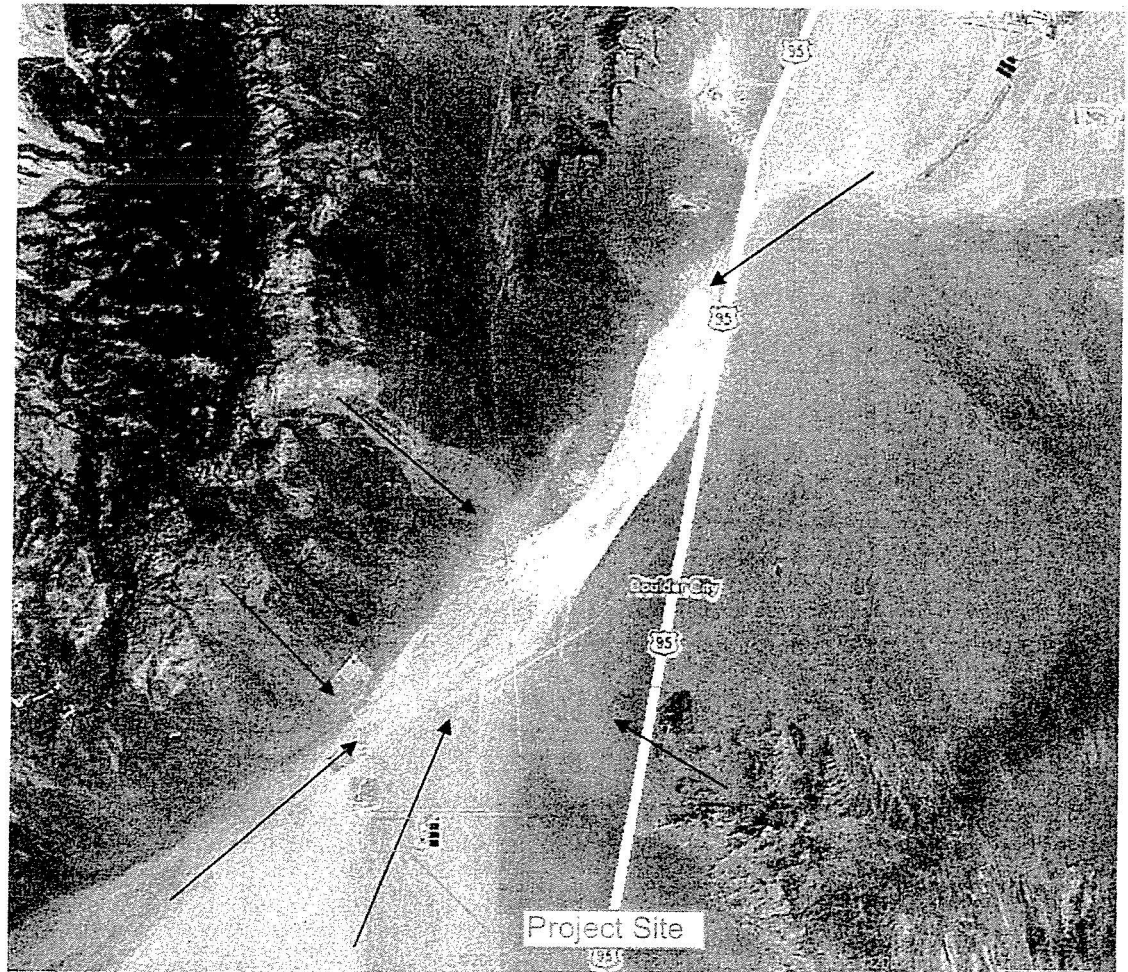
May 4, 2009

Additional Information

Sempra Global is proposing an expansion of its existing El Dorado Energy Solar I energy generation facility located near Boulder City in Clark County, Nevada. The proposed project will consist of the construction of 60 additional acres of photovoltaic panels as an extension of the existing energy production facility. The facility and proposed new construction is located in the El Dorado Valley, a 530 square mile basin along U.S. Highway 95 between Henderson and Searchlight, Nevada. The El Dorado Valley is situated within the Ivanpah-Pahrump Valleys Watershed (HUC 16060015), but the Dry Lake is a closed hydrographic basin draining stormwater runoff from the surrounding mountains via numerous ephemeral washes into a depression known as "Dry Lake". This hydrologic sub-area is bordered on the west by the McCullough Range, on the east by the El Dorado Mountains, on the south by the Highland Range, and on the north by the Black Hills and River Mountains. Dry Lake is an isolated intrastate water feature with no hydrological outlets and thereby lacks connectivity to a relatively permanent waterway or traditionally navigable waterway.



Landscape surrounding the El Dorado Energy site.

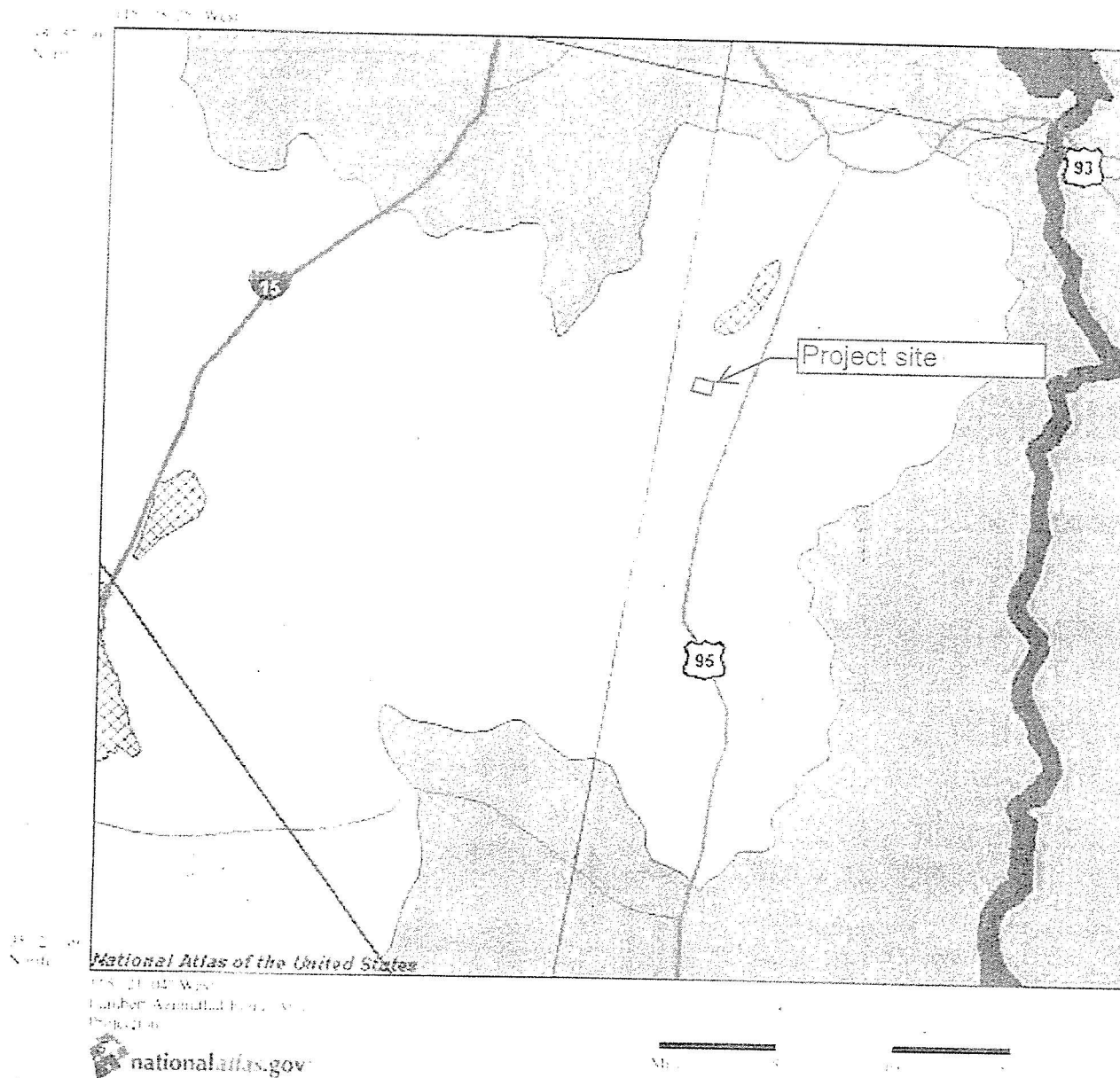


Aerial photograph of El Dorado Energy and relation to Dry Lake. Arrows represent flow patterns of washes.

National Atlas of the United States - Print Window

Page

EDE Solar I - USGS Watershed Map



Boundaries

States

Source: U. S. Geological Survey

☒ States

Map Reference

Latitude/Longitude

Source: U. S. Geological Survey

Appendix C Agency Correspondence

☒ Latitude/Longitude

November 2011

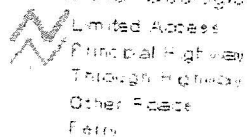
National Atlas of the United States Print Window

Page 1

Transportation

Roads

Source: U.S. Geological Survey

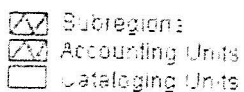
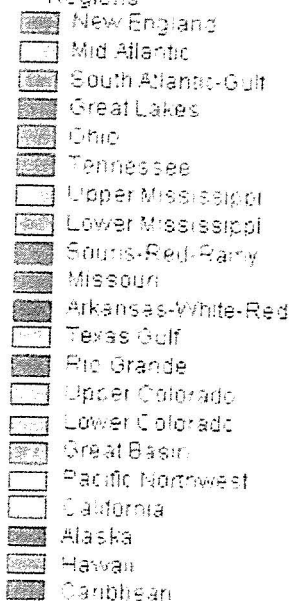


Water

Hydrologic Units (Watersheds)

Source: U.S. Geological Survey

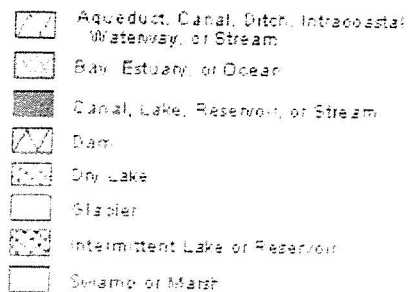
Regions



Streams and Waterbodies

Source: U.S. Geological Survey

Streams and Waterbodies



AECOM

AECOM Environment
1220 Avenida Acaso, Camarillo, CA 93012-8738
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Memorandum

Date: February 5, 2009
To: Carl Linder
From: Roy Hauger, P.E.
Subject: SPCC applicability

Distribution: Ms. Joan Heredia
Sempre

The federal rule that requires a facility to prepare and implement a Spill Prevention Control and Countermeasures (SPCC) plan is 40 CFR 112. The United States Environmental Protection Agency (EPA) has also developed "SPCC Guidance for Regional Inspectors" (SPCC Guidance) to act as a guide to owners and operators of facilities that may be subject to the requirements of the SPCC rule and the general public on how EPA intends the SPCC rule to be implemented.

The applicability of the SPCC rule to a facility is discussed in Chapter 2 of the SPCC Guidance: "*In general, SPCC-regulated facilities are non-transportation-related, have above ground oil storage capacity of more than 1,320 gallons on site, and could reasonably be expected to discharge oil to navigable water or adjoining shorelines in quantities that may be harmful.*" The SPCC Guidance further states that "*Any onshore or offshore facility that due to its location, could not reasonably be expected to have a discharge as described in paragraph (b) of this section. This determination must be based solely upon consideration of the geographical and location aspects of the facility (such as proximity to navigable waters or adjoining shorelines, land contour, drainage, etc.) and must exclude consideration of manmade features such as dikes, equipment or other structures, which may serve to restrain, hinder, contain, or otherwise prevent a discharge as described in paragraph (b) of this section.*" The paragraph from the SPCC Guidance is presented as Attachment 1 to this memo.

For the El Dorado Energy (EDE) facility, the consideration that determines if a SPCC plan is required or not is the evaluation of the geographical and location aspects of the EDE facility (such as proximity to navigable waters or adjoining shorelines, land contour, drainage, etc.)

The EDE facility is geographically located in the El Dorado Valley, Boulder City, Nevada at an approximate elevation of 1800 feet mean sea level (MSL). Review of the United States Geologic Service (USGS) topographic map for this area indicates that the El Dorado Valley drains to an unnamed dry lake that is at ~1700 ft MSL. Based on the topography there are no drainage outlets for the El Dorado Valley, drainage within the valley is into the dry lake. Further neither the USGS topographic map nor the Clark County Regional Flood Control, El Dorado Basin Map of the area indicate that there are any defined flow paths such as ditches, arroyos, or dry washes between the EDE facility and the dry lake. Drainage from the EDE facility is characterized as sheet flow over permeable desert soils to the north, into the dry lake.

Mr. Carl Linder
Page 2

The SPCC federal rule provides a definition of navigable water (See Attachment 2, an excerpt from the SPCC rule). Dry lakes are not named specifically as navigable waters and dry lakes do not meet any of the criteria listed.

Based on the evaluation of the geographical and location aspects of the EDE facility, the EDE facility could not reasonably be expected to discharge oil to navigable waters or adjoining shorelines. Therefore SPCC rules would not apply to the EDE facility.

Sincerely yours,

Roy L Hauger, Jr, P.E.
roy.hauger@aecom.com

Attachment 1 Excerpt from SPCC Guidance, Chapter 2 General Applicability

Part 112.1, General applicability, number 1. (d) Except as provided in paragraph (f) of this section, this part does not apply to: (1) The owner or operator of any facility, equipment, or operation that is not subject to the jurisdiction of the Environmental Protection Agency (EPA) under section 311(j)(1)(C) of the CWA, as follows:

Any onshore or offshore facility that due to its location, could not reasonably be expected to have a discharge as described in paragraph (b) of this section. This determination must be based solely upon consideration of the geographical and location aspects of the facility (such as proximity to navigable waters or adjoining shorelines, land contour, drainage, etc.) and must exclude consideration of manmade features such as dikes, equipment or other structures, which may serve to restrain, hinder, contain, or otherwise prevent a discharge as described in paragraph (b) of this section. Section 112.1 establishes the general applicability of the SPCC rule by describing both the facilities, activities, and equipment that are subject to the rule and those that are excluded. In general, SPCC-regulated facilities are non-transportation-related, have aboveground oil storage capacity of more than 1,320 gallons on site, and could reasonably be expected to discharge oil to navigable waters or adjoining shorelines in quantities that may be harmful.

Attachment 2 Excerpt from Federal regulation 40 CFR, part 112 on Definition of Navigable Waters

Navigable waters means the waters of the United States, including the territorial seas and includes:

- (i) All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide;*
- (ii) All interstate waters, including interstate wetlands;*
- (iii) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce including any such waters:*
 - (A) That are or could be used by interstate or foreign travelers for recreational or other purposes; or*
 - (B) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or*
 - (C) That are or could be used for industrial purposes by industries in interstate commerce;*
- (iv) All impoundments of waters otherwise defined as waters of the United States under this section;*
- (v) Tributaries of waters identified in paragraphs (1)(i) through (iv) of this definition;*
- (vi) The territorial sea; and*
- (vii) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraph (1) of this definition.*



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

January 14, 2009

Regulatory Division (SPK-2009-00045)

Carl Lindner
ENSR
1220 Avenida Acaso
Camarillo, California 93012

Dear Mr. Lindner:

This concerns your proposed El Dorado Energy Solar I Expansion project Dry Lake near Boulder City, Clark County, Nevada. The project is located in Sections 4, 5, 6, Township 25 South, Range 63 East, Sections 31, 32, 33, Township 24 South, Range 63 East, and Section 1, Township 25 South, Range 62 East, Mount Diablo Base and Meridian, Clark County, Nevada.

Based on the information you have provided, we have determined that the proposed work will not involve the discharge of dredged or fill material into waters of the United States. Therefore, a Department of the Army Permit is not required for this work.

Our disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act. Other Federal, State, and local laws may apply to your activities. Therefore, in addition to contacting other Federal and local agencies, you should also contact state regulatory authorities to determine whether your activities may require other authorizations or permits.

Please refer to identification number SPK-2009-00045 in any correspondence concerning this project. If you have any questions, please contact Patricia L. McQueary at our St. George Regulatory Office, 321 N. Mall Drive, Suite L-101, St. George, UT 84790, email patricia.l.mcqueary@usace.army.mil, or telephone 435-986-3979.

Sincerely,

A handwritten signature in cursive script, appearing to read "Patricia L. McQueary".

Patricia L. McQueary
Chief, St. George Regulatory Office

Appendix D. Raven Management Plan

Raven Management Plan: There is a potential for predation increase on the desert tortoise and other sensitive species by common ravens exploiting transmission towers for perching, roosting, and nesting. Sempra Generation will implement a Raven Management Plan to minimize avian predation on desert tortoise for the project. The purpose of the Raven Management Plan is to utilize methods to deter raven depredation of juvenile desert tortoises, and other wildlife species. The Raven Management Plan is not intended to eliminate or control raven populations, rather to target offending ravens that have been found to prey upon desert tortoise. The Raven Management Plan will incorporate an adaptive management strategy for immediate implementation following project construction. The Raven Management Plan will be evaluated after three years of monitoring or as needed, depending on the survey findings and field conditions, or if avian predation becomes apparent. The following activities will be implemented as part of the Raven Management Plan: (a) *Perch and Nest Prevention Devices*, and (b) *Common Raven Nest/Power Line Monitoring*. Mutual and timely cooperation between Sempra Generation and the BLM, USFWS, and the Nevada Division of Wildlife (NDOW) is central to effective implementation of the Raven Management Plan.

(a) Perch and Nest Prevention Devices. Sempra Generation will install perch and nest prevention devices on the gen-tie lattice structures. These could include triangles, plastic owls, and/or small spikes. Devices will comply with guidelines provided by the Avian Power Line Interaction Committee (APLIC 2006).

(b) Common Raven Nest/Power Line Monitoring. The name and qualifications of a Qualified Biologist(s) will be submitted to the BLM, USFWS, and NDOW for approval 30 days prior to commencement of monitoring each year. A Qualified Biologist(s) or USFWS/State approved Sempra Generation designee with expertise identifying common raven nests and desert tortoise sign will conduct:

- Nest surveys will be performed once per month, between the 15th and last day of each month, during the primary common raven nest building period (February to May) and will begin the first common raven nesting season following the completion of construction. In the event that a common raven is documented initiating a new nesting attempt during the May surveys, follow up visits to that nest will be made in the subsequent months to establish whether or not the pair is bringing desert tortoise back to the nest. Surveying once per month is expected to identify potential nests prior to hatching of chicks, considering an incubation time of approximately 4 to 5 weeks. Nest removal by Sempra Generation would occur at the time of offending raven removal, depending upon impacts on personnel safety or system reliability. If eggs or chicks are found in a removed nest, the eggs or chicks would be humanely disposed of.
- Surveys for the presence of common raven nests on Sempra Generation tower structures and for the presence of desert tortoise remains within a 15-meter radius of each tower.
- Nest survey methods may include vehicular windshield surveys or pedestrian surveys as appropriate.
- If desert tortoise remains are found below an active nest, Sempra Generation will document the remains and verify the nesting status of the common ravens (e.g., incubating, feeding nestlings) and notify the BLM, USFWS, and NDOW verbally (via phone call) and in writing

(via email or fax) within 24 hours of documenting the remains. Sempra Generation will mark or collect the desert tortoise remains after verification with the USFWS.

In addition, Sempra Generation will establish a Cooperative Service agreement with US Department of Agriculture, Animal and Plant Health Inspection Service facilitating USFWS' performance of removal efforts of offending common raven(s) and nests on project structures. Sempra Generation will be responsible for expenses attributed to removal of common ravens and nests on project structures. The Cooperative Agreement would allow the removal of offending ravens and their nests through a depredation permit held by APHIS-USFWS. Nest removal of offending ravens will occur at the time of raven removal to the greatest extent possible depending upon impacts on personnel safety or system reliability. Also, at least once per year and outside of the avian breeding season and the desert tortoise's most active season, where personnel safety or system reliability does not pose a threat, Sempra Generation will remove all other raven nests (e.g., inactive or non-offending ravens) identified during the monthly surveys. Sempra Generation will dispose of nesting material so that it is no longer available for nest building (e.g., removal to a landfill, or disposal at a Sempra Generation facility). APHIS-USFWS intends to respond to nest removal within 2 to 3 days following notification of nest(s) identified on project tower structures belonging to offending raven(s). However, Agency response time may be limited by available personnel or other unavoidable factors out of the scope of this Raven Management Plan. The joint Cooperative Agreement when prepared between Sempra Generation and APHIS-USFWS will establish working timeframes to manage ravens documented to negatively impact the desert tortoise.

Sempra Generation will annually submit progress reports to the USFWS, BLM, and NDOW within 90 days of the years' last survey effort. The annual report would contain nest survey monitoring and raven removal results including geographic information system layer(s) of all the nests recorded/destroyed and ravens removed during the year. After three years of compiling nest survey and raven removal activities, an effectiveness evaluation of this conservation measure will be performed by Sempra Generation inclusive of identification of appropriate adaptive measures for Sempra Generation's implementation in the next breeding season. Based on the effectiveness of initial conservation measures, Sempra Generation will implement adaptive management measures after timely consultation with the BLM, USFWS, and NDOW.

The frequency and type of surveys implemented may increase or decrease depending on survey results and the effectiveness of monitoring and removal efforts. If avian predation concerns become apparent interim to the third-year Raven Management Plan evaluation, adaptive measures addressing the situation would be identified and implemented with the agencies concurrence. Nest monitoring, common raven removal, and searches for desert tortoise remains will be conducted for the life of the Proposed Action or until Sempra Generation demonstrates, and the agencies agree, that any or all of these actions are no longer necessary based on the results of nest monitoring surveys and raven removals.

An evaluation of the effectiveness of this minimization measure will be reviewed by Sempra Generation, BLM, USFWS, and NDOW on an annual basis in order to develop appropriate adaptive measures for the project for the next breeding season. The frequency and type of surveys implemented may increase or decrease depending on survey results and the effectiveness of the monitoring and removal. Sempra Generation will implement adaptive management measures after consultation with the USFWS based on the effectiveness of conservation measures.

Appendix E. Invasive Weed Plan

E.1. INTRODUCTION

E.1.1. Plan Purpose

The purpose of this plan is to prescribe methods to prevent and control the spread of invasive weeds during and following construction of two 230-kilovolt (kv) generation-tie (gen-tie) lines as described in the Copper Mountain Solar North Environmental Assessment (DOI-BLM-NV-S010-2011-0148-EA). The project proponent and its contractors will be responsible for carrying out the methods described in this plan.

This plan is applicable to the construction and operation of the proposed project foot print, including areas of extra temporary workspaces, and any other areas disturbed during construction. The plan also applies to land immediately adjacent to the project where invasions from the project may spread.

E.1.2. Goals and Objectives

Noxious and invasive weeds are opportunistic, non-native plant species that readily flourish in disturbed areas, thereby preventing native plant species from establishing communities. Signed in 1999, Executive Order 13112 directs federal agencies to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause. Invasive species also include noxious weeds, which are defined by law as detrimental or destructive and difficult to control or eradicate. Both Nevada and the federal government maintain lists of noxious weeds.

The goal of weed control is to implement early detection, containment, and control leading to eradication of invasive weeds during construction and operation of the proposed facilities. Monitoring and maintenance during the construction and operational phases will include identification of any local infestation areas on and adjacent to the Project ROW that may pose potential infestation. An evaluation of the efficiency of the prescribed control measures will also be implemented during the operational phase.

E.1.3. Project Description

The project proponent proposes to construct two gen-tie lines within Bureau of Land Management (BLM)-managed utility corridors in the Eldorado Valley. The gen-ties will deliver electricity generated at the proposed Copper Mountain Solar North solar field, located on private land, to substations, also located on private land, for distribution to the grid. The first gen-tie will run for either 4.9 miles (Alternative 1) or 8.1 miles (Alternative 2) within the BLM-managed utility corridor. The second line will run for either 0.3 miles (Alternative 1) or 0.8 miles (Alternative 2) within the BLM-managed utility corridor.

Under Alternative 1, temporary ground disturbance for both gen-ties would be approximately 32.0 acres. Temporary ground disturbance for both gen-ties under Alternative 2 would be approximately 46.1 acres.

Permanent disturbance for both gen-ties under Alternative 1 would be 8.67 acres. Under Alternative 2, the area of permanent disturbance for both gen-ties would be approximately 15.1 acres.

E.2. INVASIVE WEED TERRITORY

Nevada maintains an official list of weed species that are designated noxious species. Local Weed Supervisors designate additional weed species as noxious within individual counties. Noxious weeds are defined as weeds "...arbitrarily defined by law as being especially undesirable, troublesome, and difficult to control. Definition will vary according to legal interpretation (USU Cooperative Extension 1992)." The noxious weeds listed for Nevada are presented in Table 2-1.

Table E.1. Nevada State-Listed Noxious Weeds

Scientific Name	Common Name
<i>Acroptilon repens</i>	Russian knapweed
<i>Alhagi maurorum</i>	Camelthorn
<i>Anthemis cotula</i>	Mayweed chamomile
<i>Cardaria draba</i>	Whiteweed, hoary cress
<i>Carduus nutans</i>	Musk thistle
<i>Centaurea calcitrapa</i>	Purple starthistle
<i>Centaurea diffusa</i>	Diffuse knapweed
<i>Centaurea iberica</i>	Iberian starthistle
<i>Centaurea melitensis</i>	Malta thistle
<i>Centaurea solstitialis</i>	Yellow starthistle
<i>Centaurea stoebe ssp. micranthos</i>	Spotted knapweed
<i>Centaurea virgate spp. squarrosa</i>	Squarrose knapweed
<i>Chondrilla juncea</i>	Rush skeletonweed
<i>Cicuta maculata</i>	Water hemlock
<i>Cirsium arvense</i>	Canada thistle
<i>Conium maculatum</i>	Poison hemlock
<i>Crupina vulgaris</i>	Common crupina
<i>Cynoglossum officinale</i>	Houndstongue
<i>Euphorbia esula</i>	Leafy spurge
<i>Galega officinalis</i>	Goats rue
<i>Hydrilla verticillata</i>	Hydrilla
<i>Hyoscyamus niger</i>	Black henbane
<i>Hypericum perforatum</i>	Klamath weed
<i>Isatis tinctoris</i>	Dyer's woad
<i>Lepidium latifolium</i>	Perennial pepperweed
<i>Linaria dalmatica</i>	Dalmation toadflax
<i>Linaria vulgaris</i>	Yellow toadflax
<i>Lythrum salicaria, L. virgatum</i>	Purple loosestrife
<i>Myriophyllum spicatum</i>	Eurasian water-milfoil
<i>Onopordum acanthium</i>	Scotch thistle
<i>Peganum harmala</i>	African rue
<i>Potentilla recta</i>	Sulfur cinquefoil
<i>Rorippa austriaca</i>	Austrian fieldcress
<i>Salvia aethiopis</i>	Mediterranean sage
<i>Salvinia molesta</i>	Giant salvinia
<i>Solanum carolinense</i>	Carolina horsenettle
<i>Solanum elaeagnifolium</i>	White horsenettle
<i>Sonchus arvensis</i>	Sowthistle
<i>Sorghum alnum</i>	Columbus grass

<i>Sorghum bicolor</i>	<i>Perennial sweet Sudan</i>
<i>Sorghum halepense</i>	<i>Johnsongrass</i>
<i>Sorghum propinquum</i>	<i>Sorghum</i>
<i>Sphaerophysa salsula</i>	<i>Austrian peaweed</i>
<i>Taeniatherum caput-medusae</i>	<i>Medusahead</i>
<i>Tamarix parviflora</i> , <i>T. ramosissima</i>	<i>Saltcedar</i>
<i>Tribulus terrestris</i>	<i>Puncturevine</i>

Preconstruction field surveys were conducted and agency contacts made to identify existing noxious and invasive weed infestations along the gen-ties and at the proposed solar field in 2010 and 2011 (see Appendix C, Biological Survey Report). One invasive plant species designated by the Nevada Department of Agriculture as a Category B weed species was found within the project Study Area: Sahara Mustard (*Brassica tournefortii*). Category B species are defined as “weeds established in scattered populations in some counties of the state; actively excluded where possible, actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur.” Other invasive species found within the Study Area included Mediterranean grass (*Schismus barbatus*), cheatgrass (*Bromus tectorum*), red brome (*Bromus madritensis* ssp. *rubens*), and Russian thistle (*Salsola tragus*). These species are recognized for their widespread distribution, are considered hazardous fuels, and are difficult to control on a large scale (Ironwood Consulting, Inc. 2011).

The project proponent, the BLM, and other Federal, state and local agencies recognize that some species may not be considered feasible for eradication, but should still be mitigated for so as not to increase severity of infestation and to reduce the risk of wildfire caused by these hazardous fuels. In addition, this project’s objective is to prevent the spread of weeds, and treat selected areas along the Project Footprint where target species are problematic.

The preventive measures identified in Section 3.2 will be implemented along the gen-tie lines to minimize the spread of invasive weeds during construction activities.

E.3. INVASIVE WEED MANAGEMENT

E.3.1. Identification of Problem Areas

Prior to construction, the project proponent will provide information and training to the Contractors regarding invasive weed management; identification; and the impacts on agriculture, livestock, and wildlife. The importance of preventing the spread of invasive weeds in areas not infested, and controlling the proliferation of weeds already present, will be explained. During construction, a BLM-approved botanist will identify and map areas of concern with a GPS unit, and flag these areas for visibility by project staff. The flagging will alert construction personnel and prevent access into areas until invasive weed control measures have been implemented.

E.3.2. Preventive Measures

The following preventive measures will be implemented to prevent the spread of invasive weeds:

- All Contractor vehicles and equipment will be cleaned prior to arrival at the work site using power or high pressure equipment. The wash down will concentrate on tracks, feet, or tires and on the undercarriage, with special emphasis on axles, frame, cross members, motor mounts, and on underneath steps, running boards, and front bumper/brush guard assemblies.

Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. The Contractor, with Environmental Inspector (EI) oversight, will ensure that vehicles and equipment are free of soil and debris capable of transporting invasive weed seeds, roots, or rhizomes before the vehicles and equipment are allowed use of access roads;

- In areas where infestations are identified or noted in the field, the Contractor will stockpile cleared vegetation and salvaged topsoil adjacent to the area from which they are stripped to eliminate the transport of soil-borne invasive weed seeds, roots, or rhizomes. During reclamation, the Contractor will return topsoil and vegetative material from infestation sites to the areas from which they were stripped;
- The Contractor will use compressed air to remove seeds, roots, and rhizomes from the equipment before transport off site. Cleaning sites will be recorded using GPS equipment and this information will be reported to the local contact person or agency;
- The Contractor will ensure that straw or hay bales used for sediment barrier installations or mulch distribution are obtained from state-cleared sources that are free of primary invasive weeds. Continuing revegetation efforts will ensure adequate vegetative cover to prevent the introduction of invasive weeds; and
- The Contractor will apply fertilizer to reclaimed areas only according to the Reclamation Plans and as directed by the jurisdictional land management agency, property owner, or EI.
- Field inspections will be conducted on a daily basis and the EI will prepare a weekly monitoring report to document adherence to weed preventative measures.

E.3.3. Treatment Methods

This project will implement invasive weed control measures that will be in accordance with existing regulations and jurisdictional land management agency or landowner agreements. Before construction, only herbicides that are approved by the BLM will be applied to the identified weed infestations on BLM lands to reduce the spread or proliferation of weeds. Post-construction control measures may include one or more of the following methods:

- Mechanical methods rely on equipment that is used to mow weed populations, or hand pulling of sprouted weeds. If such a method is used, subsequent seeding will be conducted to re-establish a desirable vegetative cover that will stabilize the soils and slow the potential re-introduction of invasive weeds. Seed selection will be based on site-specific conditions and the appropriate seed mix identified for those conditions; Disking or other mechanical treatments that would disturb the soil surface within native habitats will be avoided;
- Herbicide application is an effective means of reducing the size of invasive weed populations. Applications will be controlled, as described in Section 5.1, to minimize the impacts on the surrounding vegetation. In areas of dense infestation, a broader application will be used and a follow-up seeding program implemented. The timing of subsequent re-vegetation efforts will be based on the life of the selected herbicide; Treatment methods will be based on species-specific and area-specific conditions (e.g., proximity to water or riparian areas, or agricultural areas, and time of year) and will be coordinated with the local regulatory offices; and if areas are not seeded until the following spring because of weather or scheduling constraints, all annuals and undesirable vegetation that have become established will be eradicated before seeding.

E.3.4. BLM-Specific Requirements

The Final Environmental Impact Statement on Vegetation Treatment on BLM Lands in Thirteen Western States lists 19 herbicides acceptable for use on BLM lands (USDI 2007). Guidelines for the use of chemical control of vegetation on BLM lands are presented in the Chemical Pest Control Manual. These guidelines require submittal of a Pesticide Use Proposal (PUP) and Pesticide Application Records (PARs) for the use of herbicides on BLM lands. The forms required for submittal of PUPs and PARs are included in Appendices A and B.

A PUP must be submitted and approved by the BLM Weed Specialist prior to the application of herbicide. This project will be required to submit a PAR for each use of herbicides on BLM lands within 24 hours of application. The occurrence of invasive weeds within the project foot print will be reported to the BLM Weed Specialist. The appropriate weed control procedures, including target species, timing of control, and method of control, will be determined in consultation with BLM personnel. The project proponent will be responsible for providing the necessary personnel or hiring a Contractor to implement weed control procedures.

E.4. MONITORING

The project proponent will document its observations following the above noted field inspections and make these monitoring reports available to BLM, Clark County, and the FERC as required.

Any areas where a spread of invasive weed infestation is noted, particularly in previously unaffected areas, will be further evaluated to determine if these areas require remedial action and additional treatment. The project proponent will identify such areas to the agencies by GPS coordinates, and will record any additional invasive weed control treatments. A Reclamation Monitoring Report summarizing right-of-way stability, re-vegetation progress, percent cover, and weed infestation will be provided to the BLM Weed Specialist every two years.

E.4.1. Ongoing Monitoring

The BLM and Boulder City may also contact the project proponent to report on the presence of invasive weeds. The project proponent will control the weeds on a case-by-case basis and include a summary of actions taken in the next Reclamation Monitoring Report. Furthermore, the project proponent's operations personnel are trained in the identification of predominant invasive weed populations and will report spreads of invasive weeds during the normal course of maintenance. Therefore, the right-of-way is essentially monitored on an ongoing basis.

E.4.2. Monitoring of Known Infestation Areas

In addition to biannual monitoring to support preparation of the Reclamation Monitoring Report, and ongoing invasive weed monitoring, annual site visits will be conducted in the spring by a BLM-approved botanist to monitor known infestation areas. These areas will be evaluated and controlled. The botanist will continue to visit these infestation areas on an ongoing basis or until invasive weeds in the area are controlled. In addition, the botanist will conduct a windshield survey in the spring to monitor the entire length of ROW by vehicle. The botanist will conduct periodic ground checks along the way to ensure that invasive species have not spread or been introduced to other areas.

E.5. HERBICIDE APPLICATION, HANDLING, SPILLS, AND CLEANUP

E.5.1. Herbicide Application and Handling

The project ROW is within desert tortoise habitat and as such, herbicide use for vegetation control is restricted to areas fenced off to desert tortoise travel and inhabitation. There are no herbicides approved for use in desert tortoise habitat at this time. Known infestations intended for herbicide application will be fenced to exclude desert tortoise. Weed and vegetation control without the use of herbicide may greatly increase costs of control. The project proponent acknowledges these costs and weed levels will continue to be maintained to the required degree established by the BLM.

Given this restriction, herbicide application will be based on information gathered from the Weed Districts and BLM. Before application, the project proponent or its Contractor will obtain any required permits from the local authorities (the Weed Districts and BLM). Permits may contain additional terms and conditions that go beyond the scope of this management plan. A licensed Contractor will perform the application in accordance with applicable laws and regulations and permit stipulations.

All herbicide applications must follow United States Environmental Protection Agency label instructions. Application of herbicides will be suspended when any of the following conditions exists:

- Wind velocity exceeds 6 miles per hour (mph) during application of liquids or 15 mph during application of granular herbicides;
- Snow or ice covers the foliage of invasive weeds; or
- Precipitation is occurring or is imminent.

Hand application methods (e.g., backpack spraying) that target individual plants will be used to treat small or scattered weed populations in rough terrain. Calibration checks of equipment will be conducted at the beginning of spraying and periodically to ensure that proper application rates are achieved.

Herbicides will be transported to the project site daily with the following provisions: Only the quantity needed for that day's work will be transported; concentrate will be transported in approved containers only and in a manner that will prevent tipping or spilling, and in a location that is isolated from the vehicle's driving compartment, food, clothing, and safety equipment; mixing will be done off site, over a drip catching device and at a distance greater than 200 feet from open or flowing water, wetlands, or other sensitive resources. No herbicides will be applied at these areas unless authorized by appropriate regulatory agencies; and all herbicide equipment and containers will be inspected for leaks daily. Disposal of spent containers will be in accordance with the herbicide label

E.5.2. Herbicide Spills and Cleanup

All reasonable precautions will be taken to avoid herbicide spills. In the event of a spill, cleanup will be immediate. Contractors will keep spill kits in their vehicles and in herbicide storage areas to allow for quick and effective response to spills. Items to be included in the spill kit are: Protective clothing and gloves (PPE), absorptive clay, “kitty litter,” or other commercial adsorbent, plastic bags and bucket, shovel, fiber brush and screw-in handle, dust pan, caution tape, highway flares (use on established roads only), and detergent.

Response to a herbicide spill will vary with the size and location of the spill, but general procedures include: BLM notification, traffic control; dressing the clean-up team in protective clothing; stopping the leaks; containing the spilled material; cleaning up and removing the spilled herbicide and contaminated adsorptive material and soil; and transporting the spilled pesticide and contaminated material to an authorized disposal site.

E.5.3. Worker Safety and Spill Reporting

All herbicide Contractors will be state certified to apply pesticides and obtain and have readily available copies of the appropriate material safety data sheets for the herbicides used. All herbicide spills will be reported in accordance with applicable laws and requirements.

E.6. References

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E.7. Appendix A: Nevada BLM Pesticide Use Proposal

APPENDIX A.

NEVADA BLM PESTICIDE USE PROPOSAL

PROPOSAL NUMBER:
REFERENCE NUMBER of EA:

FIELD OFFICE: COUNTY:

LOCATION:

DURATION OF PROPOSAL:

I. PESTICIDE APPLICATION (including mixtures and surfactants):

	Trade Names:	Common Names:	EPA Registration No.	Manufactures:	Fomulations (Liquid or Granular)	Method of Application
1.						
2.						
3.						

MAXIMUM RATE OF APPLICATION:	
USE UNIT ON LABEL:	POUNDS ACID EQUIVIVENT/ACRE:
1.	1.
2.	2.

INTENDED RATE OF APPLICATION:

APPLICATION DATES:

NUMBER OF APPLICATIONS:

II. PEST (List specific pest(s) and reason(s) for application):

III. MAJOR DESIRED PLANT SPECIES PRESENT:

IV. TREATMENT SITE: (Describe land type or use, size, stage of growth of target species, slope and soil type).

ESTIMATED ACRES

V. SENSITIVE ASPECTS AND PRECAUTIONS: (Describe sensitive areas [e.g., marsh, endangered, threatened, candidate and sensitive species habitat] and distance to treatment site. List measures taken to avoid impact to sensitive areas).

VI. NON TARGET VEGETATION: (Describe the impacts, cumulative impacts, and mitigations to non target vegetation that will be lost as a result of this chemical application).

integrated pest management program for the treatment area.)

Originator:

Date:

Company Name:

Phone:

SIGNATURES:

Certified Pesticide Applicator: (may be unknown at this time)

Date: _____

Field Office Pesticide/Noxious Weed Coordinator

Sean McEldery

Date: _____

District Office Authorized Officer

Mary Jo Rugwell
SNDO District Manager

Date: _____

APPROVALS (State Office Use Only):

Mark Coca
BLM State Pesticide Coordinator

Date: _____

Deputy State Director,
Natural Resources, Lands and Planning

Date: _____

- ☐ CONCUR OR APPROVED
☐ NOT CONCUR OR DISAPPROVED
☐ CONCUR OR APPROVED WITH MODIFICATIONS

E.8. Appendix B: Pesticide Application Record

APPENDIX B.

Bureau of Land Management

PESTICIDE APPLICATION RECORD

This Record is required and must be completed for monitoring within 24 hours after completion of application of pesticides. This record must be maintained for a minimum of 10 years. One form for each pesticide used (combined together).

1. Project Name: Copper Mountain Solar North

Pesticide Use Proposal Number: _____

2. Name of Applicator and License(s) Applying the Pesticide:

3. Date(s) of Application: _____ Time of Application: _____
(MONTH, DAY, YEAR)

4. Location of Application: County, Township and Section or Road and Mile Markers .

5. Type of Equipment Used to Apply Pesticide: _____

6. Pesticide (s) Used: a. Company or Manufacturer's Name: _____

b. Trade Name: _____

c. Type of Formulation: Liquid ____/ Granular ____/

7. Rate of Application Used: track for each herbicide if combined.

a. Active Ingredient per acre: _____

b. Other ingredients in formulation used: _____

c. Mix Ratio: _____

d. Total Active Ingredient Used Each (gallons/oz): _____

e. Total Volume of Formulation (gallons/oz): _____

f. Acres Treated: _____

g. Total Project Acres (if known): _____

8. Primary Target Plant(s): _____

November 9, 2011 Start Conditions: a. Wind Direction: _____ b. Wind velocity: _____
Appendix E Invasive Weed Plan
Appendix B: Pesticide Application Record

End Conditions: a. Wind Direction: _____ b. Wind velocity: _____ c. Temp. _____

E.9. Biological Survey Report

BIOLOGICAL RESOURCE TECHNICAL REPORT COPPER MOUNTAIN SOLAR NORTH PROJECT ELDORADO VALLEY, NEVADA



Prepared for:
Environmental Management and Planning Solutions, Inc.
3775 Iris Avenue, Suite 1A
Boulder, CO 80301

Prepared by:
Ironwood Consulting, Inc.
2436 W. Coast Highway, Suite 207
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SUMMARY

SEMPRA Energy is proposing to construct a photovoltaic solar power plant and 7-mile transmission line in the west-central El Dorado Valley southwest of the community of Boulder City, Nevada. The Study Area consisted of approximately 2,730 acres. Focused surveys for desert tortoise (*Gopherus agassizii*), a Federal-listed (Threatened) and State-protected species, were conducted in 2010 and 2011. Focused surveys for special status plant species were conducted in 2011. All incidental wildlife and plant species, including other special status species, observed during the surveys were recorded.

Five live tortoises and forty-two burrows were observed during these surveys. Based on the U.S. Fish and Wildlife Service (USFWS) density formula, the Study Area is estimated to support ten adult desert tortoises with a 95% confidence interval range of three to thirty-one adult desert tortoises. Within the Study Area, the overall tortoise density was estimated to be 2.3 tortoises per square mile with a 95% confidence interval range of less than one to 7.2 adult desert tortoises per square mile. The Study Area is located northwest of the Piute-Eldorado Critical Habitat Unit for the desert tortoise.

Five additional special status wildlife species were observed within the Study Area and are considered to be present, although in low densities: burrowing owl (*Athene cunicularia*), prairie falcon (*Falco mexicanus*), loggerhead shrike (*Lanius ludovicianus*), Brewer's sparrow (*Spizella breweri*), and desert kit fox (*Vulpes macrotis*). Seven other special status species were reviewed in this report but were not detected during the surveys and are considered to have a low potential to occur within the Study Area.

No special status plants were found within the Study Area during the surveys. Over 400 individual cacti plants belonging to eight relatively common species were estimated to occur within the Study Area. No species of yucca were observed.

The presence of desert tortoise and five additional special status wildlife species warrants further review of potential impacts. Coordination between BLM, USFWS, Nevada Department of Wildlife (NDOW), and Clark County is recommended. General protection measures and resource management plans aimed at minimizing adverse effects to special status species are recommended in this report.

1.0 INTRODUCTION

1.1 Purpose

This report provides a description of methods and results of focused desert tortoise and special status plant surveys conducted in 2010 and 2011 within the Study Area for the Copper Mountain Solar North Project (Project) as proposed by SEMPRA Energy. The purpose of these surveys was to determine the presence or absence of desert tortoise, rare plants, and other special status species. Although a detailed description of the proposed project and impact assessment are not included, the information presented in this report provides a basis for determining potential impacts on special status species and potential need for further coordination between Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), Nevada Department of Wildlife (NDOW), and Clark County. General measures have been recommended in this report to address potential impacts to special status species.

1.2 Regulatory Framework

This report provides information regarding biological resources regulated by several local, State and Federal laws including, but not limited to, the following environmental policies.

Endangered Species Act

The Endangered Species Act (ESA) was passed by the U.S. Congress in 1973 and provides for the protection of threatened and endangered plants and animals and their critical habitat. The U.S. Fish and Wildlife Service (USFWS) is the responsible federal agency for implementing the ESA for all terrestrial species. Consultation with the USFWS is performed through Section 10 (no federal nexus) or Section 7 (federal agency involved).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the “take” (i.e., killing, harassing, trapping, or attempting to do so) of native migratory bird species. The MBTA makes it unlawful to pursue, hunt, take, capture, kill, or sell birds listed under the MBTA. The statute does not discriminate between live or dead birds, and grants full protection to any bird parts, including feathers, eggs, and nests.

Bald and Golden Eagle Protection Act

Bald and Golden Eagle Protection Act prohibits any form of possession or taking of both bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). Under current regulations, limited take through disturbance or mortality may be authorized for otherwise lawful activities.

BLM Cacti and Yucca Salvaging Guidelines

The BLM typically requires transplanting and salvage of native plant species that would otherwise be affected by development on their lands (BLM 2001). Species of cacti, yucca, and ocotillo are usually considered for transplanting and salvage.

Invasive Plants and Noxious Weeds

The BLM manages invasive plant species and noxious weeds through coordination with the National Invasive Species Council and State of Nevada. The BLM defines noxious weeds as “a plant that interferes with management objectives for a given area of land at a given point in time.” State of Nevada defines noxious weeds and “any species of plant which is, or liable to be, detrimental or destructive and difficult to control or eradicate [Nevada Revised Statute (NRS) 555.005].” The BLM Las Vegas Office has committed to focusing on the Nevada state list of noxious weeds as these species are recognized for having major impacts on ecosystem health and natural resources (BLM 2006). The Nevada Department of Agriculture maintains the list of noxious weeds and has developed a rating system that reflects the statewide importance of the noxious weed, the likelihood that eradication or control efforts would be successful, and the present distribution of noxious weeds within Nevada.

Nevada Revised Statute 501

NRS 501, which is supplemented by the Nevada Administrative Code (NAC), is the Nevada state law that covers administration and enforcement of wildlife resources within the state. NDOW is the state agency responsible for implementation of NRS 501, including the designation of protected species and issuance of authorizations for impacts to protected species. Species designations are maintained by the Nevada Natural Heritage Program, Department of Conservation and Natural Resources.

Nevada Revised Statute 527

NRS 527.060–527.120, supplemented by the NAC, protects and regulates the removal of Christmas trees, yuccas, and cacti for commercial purposes. Such removal or possession requires a permit and tags from the Nevada Spur Forester Fire Warden, Nevada Division of Forestry.

Clark County Multiple Species Habitat Conservation Plan (MSHCP)

The Clark County MSHCP and associated Environmental Impact Statement (EIS) were developed by its applicants (Clark County; the Cities of Las Vegas, North Las Vegas, Boulder City, Mesquite, and Henderson; and the Nevada Department of Transportation) in November 2000 (CCDCP 2000). The primary objectives of the MSHCP are to allow the incidental take of Covered Species (including ESA listed species), streamline incidental take permitting process for applicants and regulators, and ensure conservation of Covered Species within Clark County.

1.3 Site Location

The Project site is located within the west-central Eldorado Valley approximately seven miles southwest of Boulder City and ten miles south-southeast of the city of Henderson, Nevada (Figure 1). The Project site is found on the Boulder City NW and Boulder City SW 7.5-Minute U.S. Geological Survey topographic quadrangles. Elevation at the site ranges from approximately 1,750 feet to 1,850 feet above mean sea level (amsl). The site is located outside the boundaries of an Area of Critical Environmental Concern (ACEC), Desert Wildlife Management Area (DWMA), BLM wilderness area, or USFWS designated Critical Habitat Unit (CHU). At its closest point, the Project site is located 1.7 miles north of the Piute-Eldorado CHU for desert tortoise.



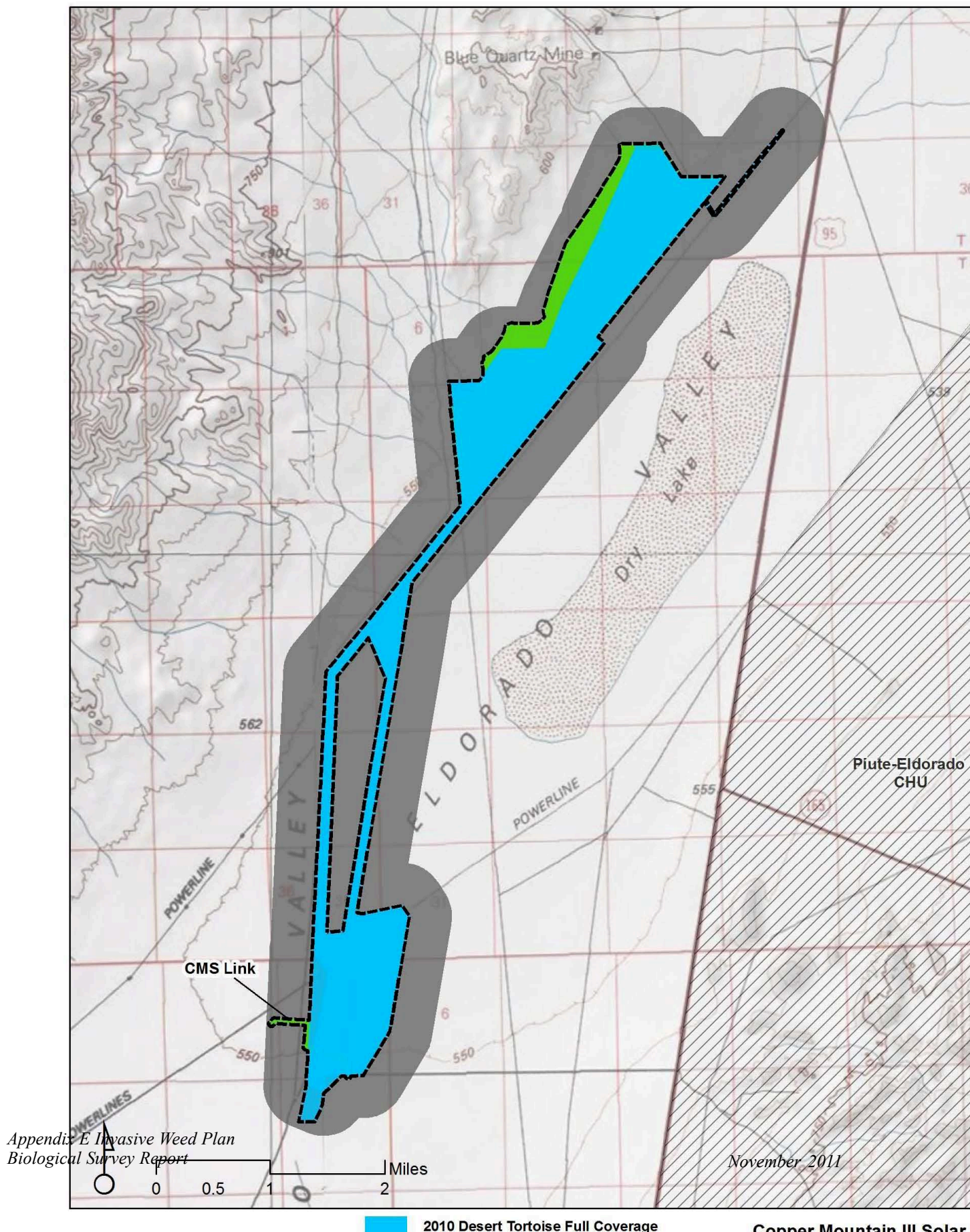
The site sits on a gentle gradient sloping from the northwest to the southeast, the land dropping approximately 1,000 feet over a linear distance of 8.5 miles, resulting in an average running grade of 2%. The soil within the Project site is alluvial fill from the McCullough Range to the west. The soil generally consists of sandy silt covered with rocks that range in size from large cobble in the west to small gravel/coarse sand in the east. Previous human-related disturbance was evident within the Study Area. Several dirt roads transect the Study Area in a general east-west direction. Evidence of off-highway vehicular existed but did not indicate that the area was heavily used. Two prominent power transmission line corridors occur in the southeastern extent of the Study Area.

1.4 Study Area

For the purpose of this report, the Study Area is defined by the area of land subject to biological resource surveys (Figure 2). Regular coordination between Ironwood Consulting, Inc. and Environmental Management and Planning Solutions, Inc. ensured that all potential disturbance areas were included in the scope of surveys to the extent feasible based on current project understanding. Survey buffers were applied to the proposed transmission line to result in an approximately 160-meter wide study corridor. This approach may allow for some degree of flexibility during final engineering design with the assurance that the final disturbance area would be covered by the Study Area. Figure 2 provides the boundaries of biological resource Study Area. The legal description of the Study Area is shown in Table 1.

Table 1 - Legal Description of the Study Area

Township	Range	Sections (partial)
23 South	63 East	27, 28, 32, 33 and 34
24 South	62 East	24, 25 and 36
24 South	63 East	4, 5, 6, 7, 8, 18, 19, 30 and 31
25 South	62 East	1, 2 and 12
25 South	63 East	6



2.0 METHODS

2.1 Special Status Species Definition

For assessment purposes in this report, a special status species has been defined as a plant or wildlife species that meets the following criteria:

- designated as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) and is protected under either the Federal Endangered Species Act (FESA);
- candidate species being considered or proposed for listing under FESA;
- protected under Nevada Revised Statutes and Nevada Administrative Code Sections 501, 503 and 527; and/or
- designated sensitive by the Bureau of Land Management (BLM) (Manual 6840.06 C).

2.2 Literature Search

Prior to conducting the focused surveys, a biological resources literature search was performed. This included referencing relevant lists and publications from the BLM, USFWS, and Nevada Natural Heritage Program (NNHP), as well as researching information from regional documents such as the Clark County Multiple Species Habitat Conservation Plan (MSHCP). Biological reports prepared on behalf of other projects within the region were reviewed for relevant information.

2.3 Focused Desert Tortoise Survey

Full coverage desert tortoise surveys were conducted during two survey periods: (1) June 14 to July 2, 2010 and (2) April 23 and 24, 2011. Focused surveys were conducted according to the USFWS revised survey protocol (USFWS 2010). The full coverage survey option described in the revised protocols was unchanged from the previous protocol (USFWS 1992a). The revised protocol also provided methods to estimate the abundance of tortoises occurring within the action area. Methods were discussed with the Las Vegas USFWS office before beginning the surveys because the surveys in 2010 were conducted after the protocol survey season (Burroughs 2010). It was agreed that the surveys would follow protocol guidelines including the stipulation that, on a daily basis, surveying would cease when air temperature, measured 5-cm above the soil surface in an area of full sun, but in the shade of the observer, reached 40⁰ C (104⁰ F). Full-coverage survey transects were spaced at 10-meters and zone of influence (ZOI) surveys were conducted at 200-, 400-, and 600-meter distances from the site boundary and the boundaries of the transmission line ROWs (Figure 2).

The field surveys collected information including:

- Preliminary characterization of plant communities and soils present in the Study Area;
- Recording all sign of desert tortoises including live tortoises, burrows, scat, tracks, and carcasses;
- Recording all other special status species sightings during the survey; and
- Recording all sightings of all common plant and animal species.

All tortoise sign (e.g., live tortoises, shell/bone/scutes, scats, burrows/pallets, tracks, egg shell fragments, and courtship rings) were recorded (Table 2). The location of all tortoise sign was recorded on a Garmin Global Positioning System (GPS) unit (GPS 72, 76, or 60CSx) using a unique identification code. The code included a two-character acronym for the type of sign (e.g., TO-live tortoise, BU-burrow, SC-scat), two-character initials for the lead surveyor of the crew, and a unique sequential number. In addition to recording sign with the GPS unit, standardized paper datasheets were completed. All data was entered from these data sheets into a Microsoft Excel spreadsheet and incorporated into Geographical Information Systems (GIS) for spatial representation of the distribution of desert tortoise sign.

Table 2 - Desert Tortoise Data Recorded

Type of Sign	Measurements	Estimates	Other
Live tortoise		Sex, age class	Location, activity
Cover site (burrow, pallet)	Width, height	Depth	Condition (active [excellent], inactive [good, fair, or poor]) and location. Each burrow was investigated by using a handheld mirror and/or flashlight to detect if a tortoise was present
Scat	Quantity	Age class	Condition (this year or not this year), location
Shell or bone (carcass or fragments)		Sex, age class, time since death	Location
Tracks		Age	Location
Eggs or fragments		# of eggs	Condition, location
Courtship rings		Width	Location

2.4 Botanical Survey

The purpose of the botanical survey was to provide information on all special status plants and natural communities. Surveys were performed to maximize the likelihood of locating special status plant species or special status natural communities within the Study Area. The primary objective was to identify all plant species within the Study Area to the taxonomic level (i.e., species, subspecies, or variety) necessary to determine rarity status. The botanical study followed the guidelines set forth by:

- Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species (BLM 2009); and
- Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants (USFWS 2000).

The botanical survey was scheduled to coincide with the primary blooming period for targeted special status species and were performed between April 20 and May 10, 2011. The survey team included personnel familiar with the identification of flora in the Mojave Desert of Southern Nevada and consisted of highly qualified botanists: Kent Hughes, Glenn Rink, Tim Thomas, Michael Honer, Michelle Cloud-Hughes, Steve Till, and Brian Sandstrom. Information on potential special status species was reviewed by the survey team to obtain an effective search image. Records of all plant species observed were maintained daily. A checklist was developed based on

previous surveys and reviewed during each subsequent day of survey. On average, linear pedestrian transects were walked at 15-meter spacing. In areas of lower cover and diversity (e.g., desert pavement), transects were spaced further apart. In areas of greater cover and diversity, transects were spaced closer to one another. This allowed for a comprehensive survey of the Study Area. Surveyors walked at a rate of approximately one mile per hour. At this rate, the resulting level of effort averaged one person-hour per six acres survey area. Additional time was spent (in the field and after the day survey) keying plant taxonomy. If a plant of unknown identification was found, a GPS record was taken and a unique identification number was assigned so that if after proper identification, it was determined to be a special status species, the population could be revisited to collect additional data. All data were incorporated into GIS.

2.5 Additional Special Status Wildlife Species

In addition to recording desert tortoise and special status plant species, surveyors recorded all wildlife species, regardless of status, that were encountered during the survey. All special status species recorded as incidental data were also recorded by GPS and assigned a unique identifier. All other species were tallied at the end of each transect and recorded throughout each day by each crew. All data were entered from these datasheets and were incorporated into GIS.

2.6 Rainfall Analysis

Measurements of total and average precipitation during winter periods (October through March) are important in determining the efficacy of surveys. Higher winter rainfall totals, like those experienced in the previous two winter seasons, generally result in higher rates of annual plant germination, which typically correlate with increased tortoise activity (higher likelihood of encountering a tortoise above ground) during the spring season. Rainfall data was obtained from the Western Regional Climate Center (2011). The Boulder City Cooperative Observer Program (COOP) weather station (elevation of 2,520 ft and approximately seven miles northeast) was the most proximate station to the Study Area; however, rainfall data was not available more recent than 2004. Subsequently, monthly precipitation totals were obtained from the next closest weather station providing current data: Searchlight, Nevada Remote Automated Weather Stations (RAWS) (elevation of 3,540 ft and located approximately twenty miles south). The total rainfall for winter months was summarized and compared to available historical winter rainfall data (Table 3). The historical average rainfall for Searchlight during the winter months was estimated to be 0.74 inches. By comparison, above-average winter rainfall occurred from 2009 to 2011. The most-recent winter of 2010-2011 resulted in winter rainfall twice that of the historical mean.

Table 3 - Winter Rainfall Data¹ (inches)

	October	November	December	January	February	March	Total	Monthly Average
2009-2010	0.00	0.09	0.97	3.13	1.14	0.00 ²	5.33	0.89
2010-2011	1.98	0.07	5.41	0.00	1.51	0.00 ²	8.97	1.50
Historical Mean³	0.94	0.97	0.78	0.52	0.88	0.80	4.94	0.74

¹ Searchlight RAWS - Western Regional Climate Center (2011)

² Data missing

³ Range of data from 1931 to 2011

3.0 RESULTS

3.1 Vegetation Alliance

The Study Area supports one primary vegetation alliance: *Larrea tridentata*-*Ambrosia dumosa* Shrubland Alliance (Nevada Natural Heritage Program 2011). This alliance is analogous to Creosote Bush-White Bursage Series (Sawyer and Keeler-Wolf 1995) and Mojavean Creosote Bush Scrub (Holland 1986). The association consists of two dominant plant species: creosote bush (*Larrea tridentata*) and burro brush (*Ambrosia dumosa*). Other plant species characteristic of this alliance within the Study Area include littleleaf ratany (*Krameria erecta*), beavertail cactus (*Cylindropuntia basilaris*), and golden cholla (*Cylindropuntia echinocarpa*). Representative site photographs are found in Appendix A. Ninety-five species of plants were identified within Study Area during the surveys (Appendix B).

3.2 General Wildlife

All wildlife species observed or detected within the Study Area are listed in Appendix C. Wildlife observed within the Study Area were representative of the northeastern Mojave Desert. Nineteen bird species were detected within the Study area; those bird species relatively common to the Study Area included common raven (*Corvus corax*), black-throated sparrow (*Amphispiza bilineata*), horned lark (*Eremophila alpestris*), red-tailed hawk (*Buteo jamaicensis*), lesser nighthawk (*Chordeiles minor*), common poorwill (*Phalaenoptilus nuttallii*), white-crowned sparrow (*Zonotrichia leucophrys*), and ash-throated flycatcher (*Myiarchus cinerascens*). Ten species of reptiles were detected within the Study Area; those reptile species relatively common to the Study Area included western whiptail (*Cnemidophorus tigris*), zebra-tailed lizard (*Callisaurus draconoides*), and side-blotched lizard (*Uta stansburiana*). Three species of mammals were detected within the Study Area: black-tailed jackrabbit (*Lepus californicus*), antelope ground squirrel (*Ammospermophilus leucurus*), and desert kit fox (*Vulpes macrotis arsipus*). Small mammals likely inhabit the Study Area, although focused trapping was not conducted. No fish or amphibian species are likely to inhabit the Study Area or immediately surrounding areas because suitable aquatic habitat is not present.

3.3 Special Status Plant Species

Six special status species were reviewed for their potential to occur within the Study Area (Table 4). Correspondence with the NNHP regarding special status species near the Study Area was included in this assessment (Appendix C). None of the species are federal-listed (endangered or threatened), but all are considered special status by the BLM and/or State of Nevada. Descriptions of these species and an explanation of the occurrence status follow the table. A list of plant species observed during the surveys is found in Appendix A.

Table 4 – Special Status Plants Species

Common Name <i>Scientific Name</i>	Status	Habitat	Flowering Period	Survey Results
<i>Arctomecon merriami</i> white bearpoppy	FWS: none BLM: sensitive State: none NNHP: S3 MSHCP: covered	Desert saltbush scrub and Mojave desert scrub.	Apr - Jun	Not Found
<i>Arctomecon californica</i> Las Vegas bearpoppy	FWS: none BLM: none State: CE NNHP: S3 MSHCP: covered	Mojave desert scrub and Desert saltbush scrub on gypsum soils	Apr - May	Not Found
<i>Littlefield [Astragalus] preussii</i> var. <i>laxiflorus</i> Littlefield milkvetch	FWS: none BLM: none State: none NNHP: S1S2 MSHCP: none	Chenopod scrub with dune or deep sand habitats	Mar - May	Not Found
<i>Penstemon bicolor</i> ssp. <i>bicolor</i> yellow twotone beardtongue	FWS: none BLM: sensitive State: none NNHP: S2 MSHCP: covered	Creosote-bursage, blackbrush, and mixed scrub communities	Apr - Jun	Not Found
<i>Penstemon bicolor</i> ssp. <i>roseus</i> rosy twotone beardtongue	FWS: none BLM: sensitive State: none NNHP: S3 MSHCP: none	Creosote-bursage, blackbrush, and mixed scrub communities	Mar - Sept	Not Found
<i>Penstemon albomarginatus</i> White-margined beardtongue	FWS: none BLM: sensitive State: none NNHP: S2 MSHCP: covered	Mojave desert scrub and blackbrush communities	Mar - May	Not Found
FWS - U.S. Fish and Wildlife Service NNHP - Nevada Natural Heritage Program MSHCP – Clark County Multiple Species Habitat Conservation Plan		<u>Nevada State Protected Classification</u> CE - critically endangered <u>NNHP State Ranks for Threats and Vulnerability</u> S1 – critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats or other factors S2 - imperiled due to rarity or other demonstrable factors S3 - vulnerable to decline because of rare and local throughout its range, or with very restricted range		

Arctomecon merriami (white bearpoppy) is a Nevada Special Status Species designated Sensitive by the BLM State Office. This species is ranked by the NNHP as being vulnerable to decline due to its restricted range. White bearpoppy is an evergreen perennial herb that is historically known to occur in Mojave Desert and salt desert scrub habitats, frequently in limestone and dolomite soils; on ridges, rocky slopes, gravelly canyon washes, and old lakebeds originating from carbonate rock at elevations ranging from 2,000 to 6,200 feet amsl. Populations are scattered within Clark, Lincoln, and Nye counties in Nevada and in parts of California. The white bearpoppy was not found within the Study Area during the surveys.

Arctomecon californica (Las Vegas bearpoppy) is a Nevada Fully Protected and Critically Endangered evergreen, mound-forming perennial species. This species is ranked by the NNHP as being vulnerable to decline due to its restricted range. It is historically known to occur in Mojave Desert and salt desert scrubs in gypsum soils in areas of low relief in association with other gypsum-tolerant species at elevations ranging from 1,300 to 2,700 feet amsl. Distribution of Las Vegas bearpoppy is patchy across low hills, on ridges and benches within Las Vegas Valley. Its habitat is threatened by urban and residential development, highway construction and maintenance, flood control, gypsum mining, as well as off-road vehicle use, dumping, and pollinator declines because of habitat fragmentation. The Las Vegas bearpoppy was not found within the Study Area during the surveys.

Littlefield [Astragalus] preussii var. laxiflorus (Littlefield milkvetch) has been determined by the NNHP to be critically imperiled and especially vulnerable to extinction due to extreme rarity (Appendix C). This species is a perennial herb associated with chenopod scrub communities supporting dune or deep sand habitats. Possibly less than six occurrences of this species have been documented in Nevada, although it is locally abundant in certain regions of Arizona. This species is likely dependent on sand transport systems from dry lakebeds towards lower slopes. Suitable habitat is not present within the Study Area and the Littlefield milkvetch was not found during the surveys.

Penstemon bicolor ssp. bicolor (yellow twotone beardtongue) is a Nevada Special Status Species designated Sensitive by the BLM State Office. This species is ranked by the NNHP as being imperiled due to rarity. This species is an herbaceous short-lived perennial known to occur in creosote-bursage, blackbrush, and mixed scrub communities on calcareous or carbonate soils; typically found in active gravel washes, rock crevices, and outcrops at elevations from 2,500 feet to 5,500 feet amsl. Yellow twotone beardtongue is endemic to southern Nevada and known to occur in lower elevations of the Spring Mountains and the McCullough Range. Suitable habitat is threatened by urban expansion of Las Vegas and nearby communities. The yellow twotone beardtongue was not found within the Study Area during the surveys.

Penstemon bicolor ssp. roseus (rosy twotone beardtongue) is a Nevada Special Status Species designated Sensitive by the BLM State Office. This species is ranked by the NNHP as being vulnerable to decline due to its restricted range. Rosy twotone beardtongue is a perennial herb that is known to flower from late-winter to early-spring. It is historically known to occur in creosote-bursage, blackbrush, and mixed scrub communities on rocky calcareous, granitic, or volcanic soils in washes, roadsides, scree at outcrop bases, rock crevices, or similar places receiving enhanced runoff. Rosy twotone beardtongue was not found within the Study Area during the surveys.

Penstemon albomarginatus (white-margined beardtongue) is a Nevada Special Status Species designated Sensitive by the BLM State Office. This species is ranked by the NNHP as being imperiled due to rarity. White-margined beardtongue is a perennial herb that is historically known to occur in Mojave Desert scrub, and less frequently in blackbrush scrub, on sand bottoms of outwash canyons and the leeward side of lake beds at elevations ranging from 1,500 feet to 3,500 feet amsl. This species is dependent on sand transport systems from dry lakebeds towards lower slopes. It is endemic to the eastern Mojave Desert and has been recorded in Hidden Valley, Jean Lake, and Roach Lake. Suitable habitat is not present within the Study Area and the white-margined beardtongue was not found during the surveys.

3.4 Cacti and Yucca

Cacti and yucca, as well as evergreen trees, are protected and regulated by BLM and Nevada policy. These regulations cover the removal or possession at commercial rates of cacti, yucca, and evergreen trees. In compliance with these regulations an estimate of the number of cacti and yucca was compiled for the Study Area during the surveys. No species of yucca were observed. Eight species of cactus were observed (Table 5).

Table 5 - Estimates of Cacti within Study Area

Scientific Name	Common Name	Estimated Quantity
<i>Cylindropuntia acanthocarpa</i> var. <i>coloradensis</i>	acanthocarpa	30 to 50
<i>Cylindropuntia basilaris</i> ssp. <i>basilaris</i>	beavertail	80 to 100
<i>Cylindropuntia echinocarpa</i>	golden cholla	80 to 100
<i>Cylindropuntia ramossissima</i>	pencil cholla	40 to 60
<i>Echinocactus polycephalus</i>	cottontop	20 to 30
<i>Ferocactus cylindraceus</i> var. <i>cylindraceus</i>	barrel cactus	30 to 50
<i>Mammillaria tetrancistra</i>	Common fishhook cactus	20 to 30
<i>Sclerocactus johnsonii</i>	Johnson's fishhook cactus	10 to 20

3.5 Invasive Plant Species

One invasive plant species designated by the Nevada Department of Agriculture as a Category B weed species was found within the Study Area: Sahara Mustard (*Brassica tournefortii*). Category B species are defined as “weeds established in scattered populations in some counties of the state; actively excluded where possible, actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur.” Other invasive species found within the Study Area included Mediterranean grass (*Schismus barbatus*), cheat grass (*Bromus tectorum*), red brome (*Bromus madritensis* ssp. *rubens*), and Russian thistle (*Salsola tragus*). These species are recognized for their widespread distribution and are typically not considered to be feasibly controlled on a large scale.

3.6 Special Status Wildlife Species

Thirteen special status wildlife species were evaluated for their potential to occur (Table 6). One wildlife species that is Federal-listed (Threatened) and State-protected occurs within the Study Area: the desert tortoise. Five additional special status wildlife species were detected within the Study Area: burrowing owl (*Athene cunicularia*), prairie falcon (*Falco mexicanus*), loggerhead shrike (*Lanius ludovicianus*), Brewer's sparrow (*Spizella breweri*), and desert kit fox (*Vulpes macrotis*). Special status species that were detected within the Study Area are discussed further in this section of the report.

Table 6 - Special Status Wildlife Species

Scientific Name Common Name	Status	Potential to Occur
REPTILES		
<i>Gopherus agassizii</i> desert tortoise	FWS: threatened BLM: sensitive State: protected NNHP: S2S3 MSHCP: covered	Present Five live tortoises observed in northern half of Study Area. Forty-two fair to excellent burrows and nine carcasses observed within Study Area.
<i>Heloderma suspectum cinctum</i> Gila monster	FWS: none BLM: sensitive State: protected NNHP: S2 MSHCP: none	Not Found Low potential to occur in higher elevations of Study Area. Suitable habitat located in rocky foothills ½ mile west of Study Area in the north.
<i>Sauromalus obesus</i> chuckwalla	FWS: none BLM: sensitive State: none NNHP: S3 MSHCP: none	Not Found Low potential to occur in higher elevations of Study Area. Suitable habitat located in rocky foothills ½ mile west of Study Area in the north.
BIRDS		
<i>Aquila chrysaetos</i> golden eagle	FWS: none BLM: sensitive State: protected NNHP: S4 MSHCP: none	Not Found Low potential (foraging). Nesting habitat is absent from Study Area. Suitable nesting habitat approximately three miles west of Study Area in McCullough range.
<i>Athene cunicularia</i> burrowing owl	FWS: none BLM: sensitive State: protected NNHP: S3B MSHCP: none	Present Active sign (two burrows, white wash and pellets) observed in the northern half of the Study Area. Likely resident in low numbers.
<i>Falco mexicanus</i> prairie falcon	FWS: none BLM: sensitive State: protected NNHP: S4 MSHCP: none	Present (foraging only) One individual observed in flight over northern half of Study Area. May forage within Study Area. Nesting habitat is absent from Study Area. Suitable nesting habitat approximately three miles west of Study Area in McCullough range.
<i>Lanius ludovicianus</i> loggerhead shrike	FWS: none BLM: sensitive State: protected NNHP: S4 MSHCP: none	Present One individual observed within Study Area. Possible resident in low numbers.

<i>Scientific Name</i> Common Name	Status	Potential to Occur
<i>Spizella breweri</i> Brewer's sparrow	FWS: none BLM: none State: protected NNHP: S4B MSHCP: none	Present One individual observed within Study Area. Possible resident in low numbers.
<i>Toxostoma lecontei</i> Le Conte's thrasher	FWS: none BLM: sensitive State: protected NNHP: S2 MSHCP: none	Not Found Low potential
MAMMALS		
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	FWS: none BLM: sensitive State: protected NNHP: S2 MSHCP: none	Not Found Low potential to occur. Foraging only.
<i>Myotis ciliolabrum</i> western small-footed myotis bat	FWS: none BLM: sensitive State: none NNHP: S2 MSHCP: none	Not Found Low potential to occur. Foraging only.
<i>Tadarida brasiliensis</i> Brazilian free-tailed bat	FWS: none BLM: sensitive State: protected NNHP: S3S4 MSHCP: none	Not Found Low potential to occur. Foraging only.
<i>Vulpes macrotis</i> desert kit fox	FWS: none BLM: none State: protected NNHP: S3 MSHCP: none	Present Fifteen burrow complexes with recent and historical sign observed within Study Area.

FWS - U.S. Fish and Wildlife Service

NNHP - Nevada Natural Heritage Program

MSHCP - Clark County Multiple Species Habitat Conservation Plan

Protected - NRS 501

NNHP State Ranks for Threats and Vulnerability

S1 - critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats or other factors

S2 - imperiled due to rarity or other demonstrable factors

S3 - vulnerable to decline because of rare and local throughout its range, or with very restricted range

S4 - long-term concern, though now apparently secure; usually rare in parts of its range, especially at its periphery

B - breeding status within Nevada

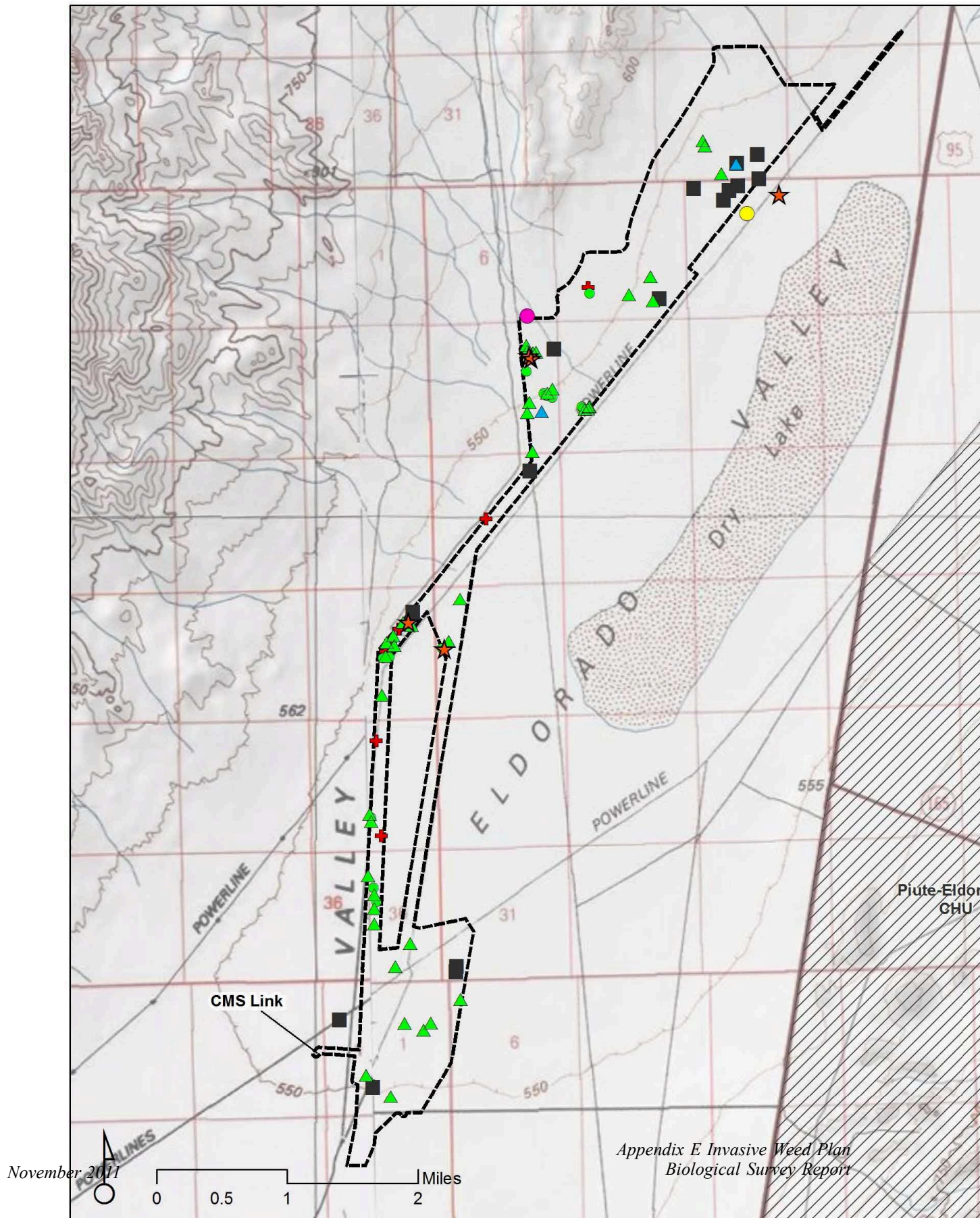
Gopherus agassizii (desert tortoise) is a Federal-listed (Threatened), BLM-sensitive, and State-protected species. The desert tortoise is historically known to inhabit desert scrub, desert wash and Joshua tree habitats throughout the Mojave and Sonora deserts with appropriate soils for burrowing, and prefers areas of creosote scrub with abundant annual plant species, which are its primary food source. Desert tortoises are territorial and generally create a number of burrows within a given territory all of which may be used during the times of year when they are active (typically spring and fall). Five live desert tortoises (two that were in the immediate vicinity of one another) were found within or adjacent to the Study Area. Forty-two burrows, of which approximately one-third contained evidence of recent use (active burrows) were found within the Study Area (Figure 3). Other sign including nine carcasses and scat were observed.

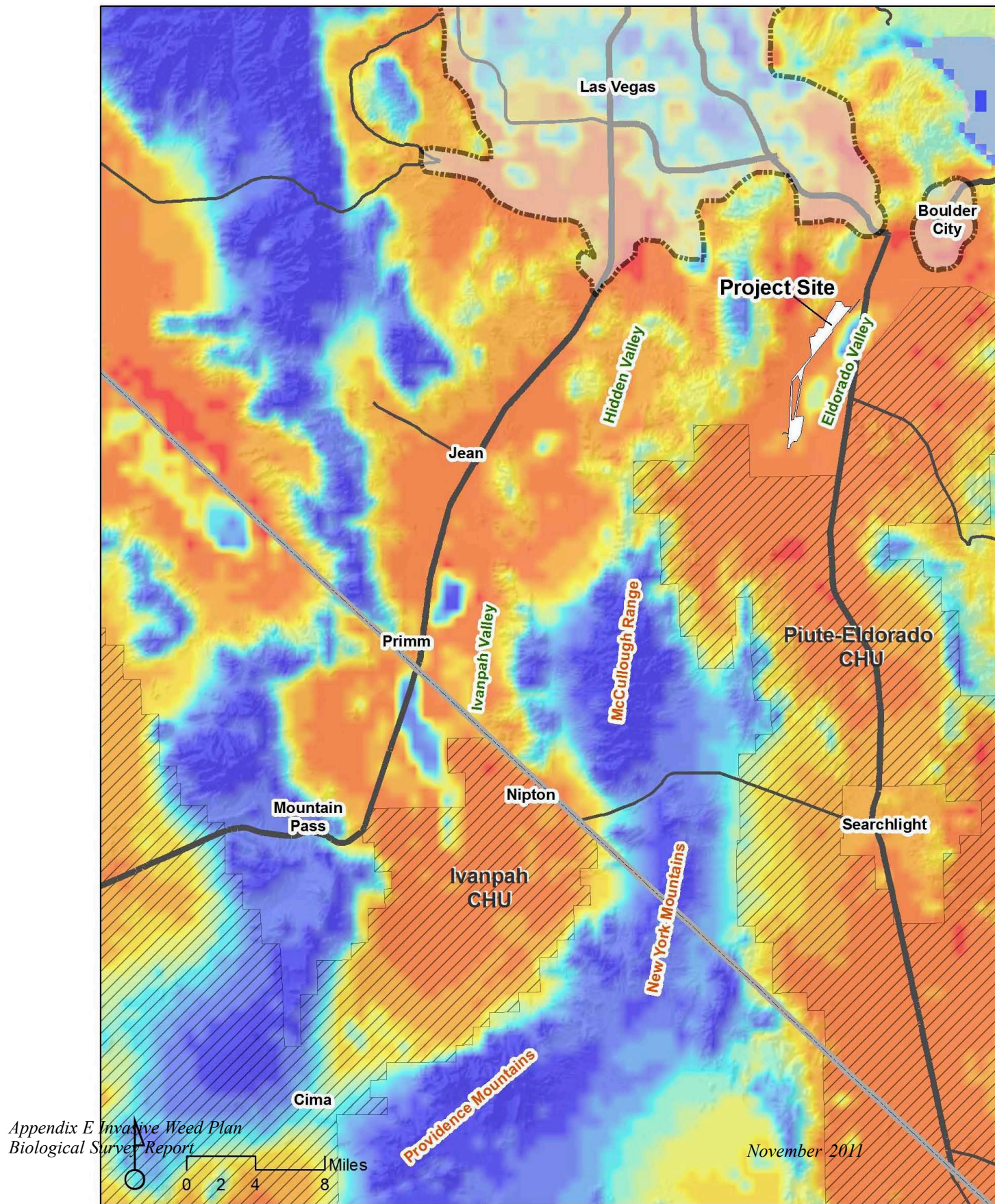
For the purposes of this analysis, the size of the action area is equivalent to the Study Area. Using the total number of live tortoises encountered during the survey, a range of estimated numbers of tortoises within the Study Area was calculated using the formula described in the revised protocol (USFWS 2010):

$$\left(\begin{array}{c} \text{Estimated number of tortoises} \\ \text{within action area} \end{array} \right) = \frac{\left(\begin{array}{c} \text{Number of tortoises} \\ \text{observed above ground} \end{array} \right)}{\left(\begin{array}{c} \text{Probability that} \\ \text{a tortoise is} \\ \text{above ground (P}_a\text{)} \end{array} \right) \left(\begin{array}{c} \text{Probability of} \\ \text{detecting a tortoise,} \\ \text{if above ground (P}_d\text{)} \end{array} \right)} \left(\begin{array}{c} \text{Size of action area} \\ \text{Size of area surveyed} \end{array} \right)$$

A conservative value of 0.64 was used for the P_a (probability that a tortoise is above ground). P_d (probability of detecting a tortoise, if above ground) is a constant value of 0.63 based on regional sampling data (USFWS 2010). Based on this formula, the Study Area (approximately 2,730 acres) is estimated to support ten adult desert tortoises (95% confidence interval estimates are three to thirty-one adult desert tortoises). Within the Study Area, the overall tortoise density is estimated to be 2.3 tortoises per square mile (95% confidence interval estimates are less than one to 7.2 adult desert tortoises per square mile).

In assessing impacts to desert tortoise, the USFWS has expressed recent concern with preserving necessary habitat connectivity and genetic flow between large geographically distant populations (USFWS 2011a and 2011b). Preservation of connectivity between the Ivanpah and Piute-Eldorado Critical Habitat Units (CHU) is of primary interest by the USFWS (USFWS 2011a). Recent studies have indicated that the main connectivity between these CHUs is located north-south through eastern Ivanpah Valley and east-west through the northern McCullough Range south of Hidden Valley (Figure 4; Hagerty 2010 and Nussear 2009). The Project is located approximately seven miles northeast of the main connectivity corridor; however, the least cost path modeling provided by Hagerty (2010) indicates that several potential routes located west and north of the Study Area





Effects to desert tortoises should further be evaluated in context with the Desert Tortoise Recovery Plan (USFWS 2008a). The recovery plan addresses conservation and enhancement of desert tortoise populations as a whole and also within distinct recovery units. The Study Area is located in the Northeastern Mojave Recovery Unit. Desert tortoise populations within this recovery unit have experienced a decline in densities over the last several decades (USFWS 2011a).

***Athene cunicularia* (burrowing owl)** is a BLM-sensitive, State-protected species and is protected by the Migratory Bird Treaty Act. It is historically known to occur in open, dry grasslands, agricultural and range lands, and desert habitats often associated with burrowing animals. This species typically nests in mammal burrows although they may use man-made structures including culverts and debris piles. They exhibit strong nest site fidelity. Burrowing owls eat insects, small mammals and reptiles. Burrowing owls can be found from California to Texas and into Mexico. In some cases, owls migrate into southern deserts during the winter. Evidence of burrowing owl presence, consisting of “whitewash” at the entrance to a non-active burrow, was found on the site; thus burrowing owls can be considered present, but in low densities, within the Study Area. The tortoise burrows documented during the surveys could also serve as possible burrowing owl burrows; however, no other burrows contained sign of recent or historical use (Figure 3).

***Falco mexicanus* (prairie falcon)** is a BLM-sensitive, State-protected species and is protected by the Migratory Bird Treaty Act. This large falcon typically builds nest sites on cliffs, similar to the golden eagle. In the desert they are found in most vegetation types, although sparse vegetation provides the best foraging habitat. In the Mojave, mean home range size has been found to be approximately 50 to 70 km² (Harmata et al. 1978). A single prairie falcon was observed in flight over the northern portion of the Study Area in spring 2011 (Figure 3). Nesting habitat for this species does not occur within the Study Area. The nearest possible nesting habitat is within the McCullough Range located approximately four miles west of the Study Area. Prairie falcons are expected to be an infrequent forager within the Study Area.

***Lanius ludovicianus* (loggerhead shrike)** is a BLM-sensitive, State-protected species and is protected by the Migratory Bird Treaty Act. It typically is found in open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. As a predatory bird its diet consists of insects, amphibians, small reptiles, small mammals, and other birds. Shrikes typically build nests one to three meters above the ground depending on the height of the vegetation. One loggerhead shrike was recorded during the surveys (Figure 3). This species can be considered present, but in low densities, within the Study Area.

***Spizella breweri* (Brewer's sparrow)** is a State-protected species and is protected by the Migratory Bird Treaty Act. This species typically breeds in shrub habitats, such as sagebrush habitats east of Sierra Nevada Range and in higher valleys of the Mojave Desert. It is somewhat common in open desert habitats during the winter. Brewer's sparrow feeds on insects and seeds on the ground or in low shrubs. This species primarily breeds from May through August with a peak in June. One individual Brewer's sparrow was observed within the Study Area, thus this species can be considered present, although in low densities, within the Study Area.

***Corynorhinus townsendii* (Townsend's big-eared bat), *Myotis ciliolabrum* (Western small-footed myotis bat), and *Tadarida brasiliensis* (Brazilian free-tailed bat)** are BLM-sensitive, State-protected species that roost in caves, mines, and on cliffs, none of which occur within the Study Area but may occur in nearby mountains located in the foothills of the McCullough Range approximately three miles west of the Study Area. These species have a low potential (foraging only) to occur within the Study Area.

***Vulpes macrotis* (desert kit fox)** is a State-protected species and classified by the NNHP as vulnerable to decline because it is rare throughout its range. Kit foxes are primarily carnivorous and prey on black-tailed jackrabbits, desert cottontails, small mammals, insects, reptiles (sometimes small desert tortoises, and birds [including eggs]). They typically dig burrows and dens in open, level areas with loose-textured, sandy and loamy soils. These burrows may also be used by other species including burrowing owls. Fifteen den complexes with sign of recent and historical use were observed within the Study Area, thus this species can be considered present (Figure 3).

4.0 RECOMMENDED PROTECTION MEASURES

The Clark County Department of Comprehensive Planning Coordination should be contacted to determine the applicability of the Multiple Species Habitat Conservation Plan (MSHCP) and associated take authorizations for desert tortoise and other covered species. Further coordination between Bureau of Land Management (BLM), U.S. Fish and Wildlife Service (USFWS), and Nevada Department of Wildlife (NDOW) may be necessary to determine the full scope of required permitting, implementation of specific protection measures, and/or compensatory mitigation. In lieu of full MSHCP coverage, formal consultation (Section 7 of the Federal Endangered Species Act) between the BLM and USFWS may be necessary to address impacts to desert tortoise. The Biological Assessment and resulting Biological Opinion (BiOp) would provide specific conditions and requirements that may supersede the measures described in this report. The following measures are consistent with recent conditions of other large-scale renewable energy projects subject in the Mojave Desert. Final protection measures would be developed in coordination with and agreed to by the regulatory agencies.

4.1 Desert Tortoise Protection Measures

The following measures are typical of conditions of a BiOp addressing take of desert tortoise.

Lead Biologist

A Lead Biologist should be designated for the Project and should be responsible for all aspects of clearance surveys, monitoring, desert tortoise translocation, contacts with agency personnel, reporting, and long-term monitoring and reporting.

Exclusion Fencing

Prior to beginning clearance surveys, desert tortoise exclusion fencing should be constructed in specified areas consistent with clearance survey areas. The Solar Farm site should be completely fenced with security and desert tortoise exclusion fencing, including desert tortoise exclusion gates at access points. Fence installation should be monitored as a linear component. Exclusion fencing should be maintained over the course of construction and operations, as necessary.

Preconstruction Clearance Surveys

Clearance surveys should be conducted consistent with the USFWS Desert Tortoise Field Manual and current translocation guidance (USFWS 2009 and 2010b). If a desert tortoise or active burrow is found within a planned area of construction, surveys should stop at that time until the tortoise is translocated in the active season. If two complete passes are completed in a construction area (north-south and east-west) without a desert tortoise being found, construction may commence within that area outside of the active season. Fencing should continue to be checked on a daily basis throughout construction.

*Appendix E Invasive Weed Plan
Biological Survey Report*

Translocation

A Desert Tortoise Translocation Plan should be prepared for the Project. The purpose of the plan is to describe the process of translocation, minimize mortality of desert tortoises, and assess the effectiveness of the translocation effort through a long-term monitoring program. Injured tortoises should be transported to a rehabilitation facility approved by the USFWS and NDOW. Tortoises found recently killed should be salvaged and transported to a veterinary pathologist, who is familiar with desert tortoise and approved by the USFWS and NDOW. Procedures for salvaging and transport should generally follow Guidelines for the Field Evaluation of Desert Tortoise Health and Disease (Berry and Christopher 2001). Detailed health assessments on all live tortoises should be conducted following current USFWS guidance by individuals approved and permitted by the USFWS and NDOW to conduct such assessments. Detailed health assessments should be performed prior to translocation and repeated periodically during long-term monitoring. Any individual tortoise that exhibits clinical signs of Upper Respiratory Tract Disease (URTD) should be transported to the Desert Tortoise Conservation Center (DTCC) near Las Vegas, Nevada for further evaluation. Tortoises should only be prepared for transport to the DTCC by individuals authorized for these activities under the BiOp. The tortoise should be transported to the DTCC within 48 hours of it being discovered with clinical signs of disease.

Common Raven Management Plan

A Common Raven Management Plan should be developed for the Project. The primary objective of the plan is to protect the juvenile and hatchling desert tortoises from predation by common ravens. This should be accomplished in part by eliminating or minimizing all aspects of human impact that attract ravens (i.e., garbage, surface water, animal and plant waste materials, perching sites, nesting sites, and roosting sites). The secondary objective is to avoid lethal removal of ravens by installing passive bird deterrents. The final objective of this plan is to comply with the regional management actions of the agencies cooperating in the effort to promote tortoise recovery pursuant to the Final Environmental Assessment to Implement a Desert Tortoise Recovery Plan Task: Reduce Common Raven Predation on the Desert Tortoise (USFWS 2008).

4.2 Additional Biological Resource Protection Measures

Integrated Weed Management Plan

An Integrated Weed Management Plan (IWMP) should be prepared to reduce and/or eliminate the propagation and further spread of noxious and invasive weeds in the Mojave Desert due to construction, operation and decommissioning of the Project. The objectives of the IWMP would be as follows:

- Identify weed species currently present within the Project components,
- Identify weeds not seen on the Project components that may have the potential to be present in the Project area and have the potential to invade the Project site due to construction activities,

- Identify construction and maintenance activities that may increase the presence of weeds or introduce new weed species on and adjacent to the Project components, and
- Specify steps that should be taken to ensure that the presence of weed populations on and adjacent to the Project components should not increase because of construction activities. These steps should be intended to: (1) prevent weeds not currently found on the Project site from becoming established there, and (2) prevent weeds already present on the site from spreading to other areas.

Vegetation Management Plan

The Vegetation Management Plan (VMP) will address impacts to native vegetation and protected cactus species during construction and maintenance of the solar facility. The Plan will include a discussion of the limited grading approach to ground preparation and include procedural descriptions for transplantation, restoration, and reclamation of affected areas. Objectives of the VMP include:

- Present methods of salvage and transplantation of succulent/yucca/cactus,
- Describe restoration of temporarily disturbed areas using salvaged topsoil and certified weed free native vegetation,
- Specify proper seasons and timing of restoration and reclamation activities, and
- Detail monitoring and reporting goals.

4.3 General Measures

This section describes a range of design features, construction and operation best management practices (BMPs), and avoidance practices that when implemented as part of Project construction and/or operation, should collectively avoid, reduce or eliminate potential adverse effects to biological resources. Each category of features, practices and plans is described separately below.

Environmental Inspection and Compliance Monitoring Program and Plan

A comprehensive Environmental Inspection and Compliance Monitoring Program and Plan, covering both construction and operation and maintenance (O&M), should be developed. A qualified individual should be designated to serve as the Project Environmental Manager. The Environmental Manager should be responsible for:

- development and implementation of the overall Project compliance program,
- communication and coordination with the applicable regulatory agencies,
- ensuring compliance with the various conditions and requirements of permits and approvals,
- record keeping and reporting required by permits and approvals,
- ensuring that all applicable environmental plans are up to date,
- advising management of actual and potential compliance issues, and
- ensuring that Project planning takes appropriate account of compliance issues in advance.

Construction Related Plans

The following construction related plans should be developed, as necessary. These plans have specific objectives that would indirectly help reduce potential adverse effects to biological resources.

- Storm Water Pollution Prevention Plan
- Dust Control Plan
- Waste Management Plan
- Spill Prevention Control and Countermeasure Plan
- Hazardous Materials Management Plan
- Fire Prevention Plan

Construction Related BMPs

The following general measures should be implemented during construction, which would assist with reducing potential adverse effects to biological resources:

- Construction and O&M activities should be limited to daylight hours to the extent possible,
- Water required for construction purposes should not be stored in open containers or structures and should be transported throughout the site in enclosed water trucks,
- Water sources (such as wells) should be checked periodically by monitors to ensure they are not creating open water sources through leaking or consistently overfilling trucks,
- All vehicles leaking fuel or other liquids should be immediately removed to the staging area and repaired – all spills should be cleaned up promptly and disposed of correctly,
- All construction activities conducted outside the fenced areas should be monitored by a qualified biological monitor,
- Vegetation removal should be limited to the smallest area necessary,
- Construction traffic should remain on existing roads when possible – new roads, passing areas, and turning areas should be limited to permitted area of direct effect,
- Speed limits on all unpaved areas of the Project site should be a maximum of 15 miles per hour,
- Trash should always be contained within raven-proof receptacles and removed from the site frequently, including trash collected in vehicles in the field,
- No dogs or firearms should be allowed on the Project site during construction or O&M,
- Plant and wildlife collection by Project staff during construction or operation should be prohibited except as allowed by the Project's permits,

Worker Environmental Awareness Program

A formal Worker Environmental Awareness Program (WEAP) should be completed for every individual working on the Project site. All individuals completing the training should sign an attendance sheet and receive wallet cards and stickers to show they have completed this training. The training should include the following information and include photos of all resources:

- Discussion of the fragile desert ecosystem, vegetation and wildlife communities within and surrounding the Project site,
- Discussion of rare plant species and other sensitive species found within and surrounding the Project site,
- Desert tortoise ecology, threats, legal protections, permitting, and penalties (including both legal and imposed by Project permits),
- Project-specific protection measures, and
- Worker responsibilities, communication protocol, and monitor responsibilities, including the authority for monitors to halt Project activities if warranted.

4.4 Compensatory Mitigation

Consistent with BLM requirements and conditions likely to be imposed on the Project by NDOW and USFWS, areas of desert tortoise habitat should be acquired to partially offset the potential adverse effects of the Project. A Compensatory Mitigation Plan, or Habitat Compensation Plan, would be a valuable tool to document the details of mitigation opportunities. Land acquisition should be considered the first priority; however, it is evident that the land purchase opportunities within the northwestern Mojave Desert are limited. Supplemental mitigation actions should be considered. These actions could be in the form of habitat restoration and enhancement throughout the Mojave Desert. Continued coordination with the BLM, NDOW, and USFWS would be beneficial in identifying all possible compensatory mitigation opportunities as they arise.

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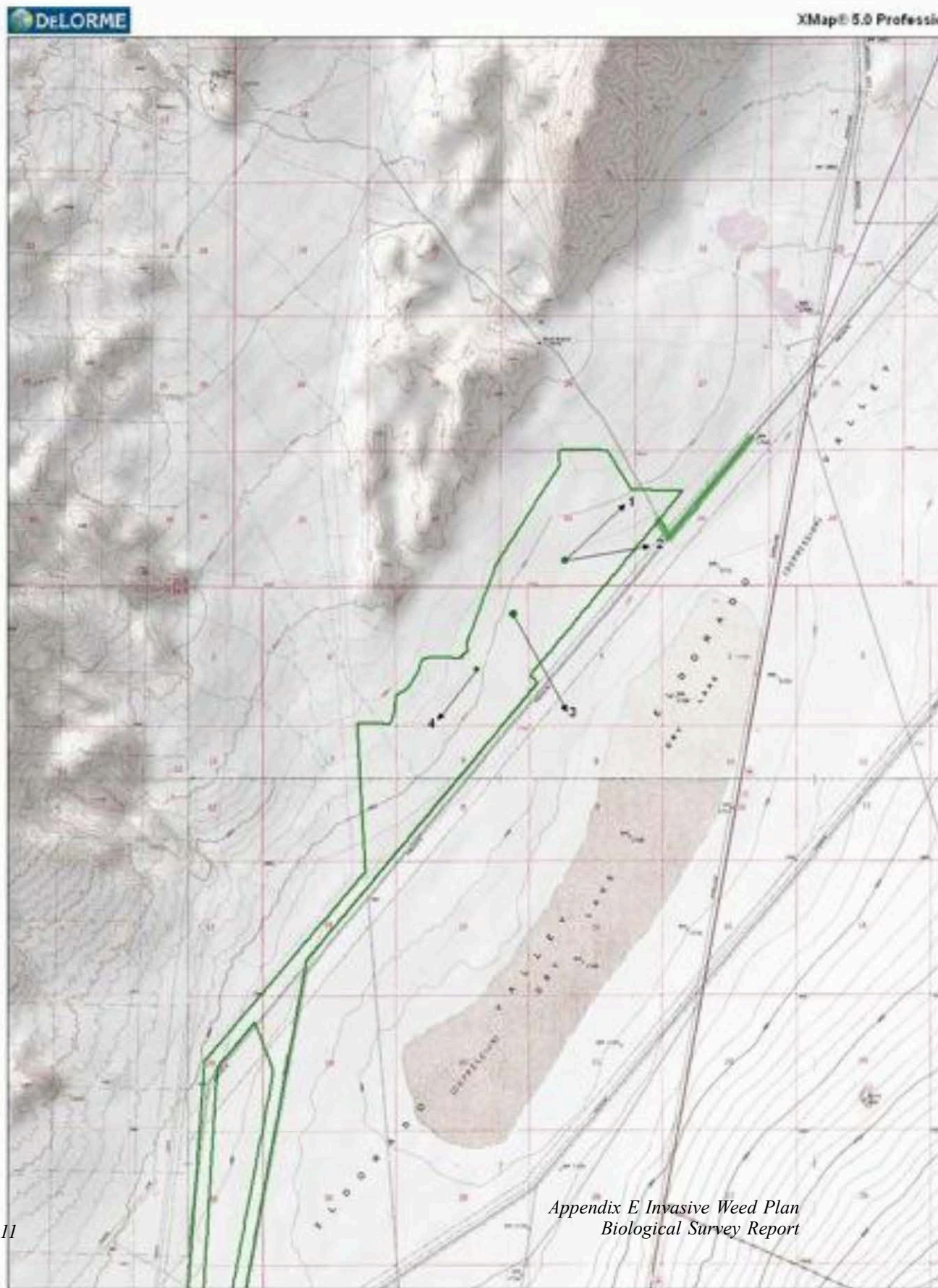
2010a Pre-project Field Survey Protocol for Potential Desert Tortoise Habitats, February 2010.

2010b Translocation of desert tortoises (Mojave Population) from project sites: plan development guidance.

2011a Biological opinion on BrightSource Energy's Ivanpah Solar Electric Generating System Project, San Bernardino County, California [CACA-48668, 49502, 49503, 49504](8-8-10-F-24). Memorandum to the District Manager, Bureau of Land Management, California Desert District, Moreno Valley, California.

2011b Biological Opinion on the Desert Sunlight Solar Farm Project, Riverside County, California [CACA 48649]. Memorandum to the District Manager, Bureau of Land Management, Palm Springs-South Coast Field Office, Palm Springs, California.

APPENDIX A
Site Photographs



November 2011

Appendix E Invasive Weed Plan
Biological Survey Report



Photo 1 - *Larrea tridentata*-*Ambrosia dumosa* Shrubland Alliance with rocky soils.



Photo 2 - *Larrea tridentata*-*Ambrosia dumosa* Shrubland Alliance with sandy soils.



Photo 3 – Desert pavement and historical disturbance.



November 2011

Appendix E Invasive Weed Plan
Biological Survey Report

Photo 2 - *Larrea tridentata*-*Ambrosia dumosa* Shrubland Alliance in lower alluvial fan.

APPENDIX B
Plant Species Detected

Family	Genus	Species	Var./Sp.	Common name
Asclepiadaceae	Asclepias	erosa		desert milkweed
	Cynanchum	utahense		Utah vine milkweed
Asteraceae	Acamptopappus	sphaerocephalus	var. hirtellus	goldenhead
	Adenophyllum	cooperi		Cooper's dogweed
	Ambrosia	dumosa		white bur-sage
	Ambrosia	salsola		cheesebush
	Atrichoseris	platyphylla		Gravel ghost
	Baileya	pleniradiata		woolly marigold
	Bebbia	junceae	var. aspera	sweetbush
	Brickellia	incana		
	Calycoseris	wrightii		
	Chaenactis	carphoclinia	var. carphoclinia	pebble pincushion
	Chaenactis	fremontii		Fermont's pincushion
	Eriophyllum	wallacei		Wallace's wooly daisy
	Malacothrix	coulteri		
	Malacothrix	glabrata		desert dandylion
	Monoptilon	bellidiforme		desert star
	Psathyrotes	annua		
	Rafinesquia	neomexicana		desert chicory
	Stephanomeria	pauciflora	var. pauciflora	wirelettuce
	Stylocline	micropoides		woollyhead neststraw
Boraginaceae	Xylorhiza	tortifolia	var. tortifolia	Mojave aster
	Amsinckia	tessellata	var. tessellata	devil's lettuce
	Cryptantha	angustifolia		Panamint cryptantha
	Cryptantha	maritima		Guadalupe cryptantha
	Cryptantha	micrantha		redroot crytantha
	Cryptantha	nevadensis		Nevada crytantha
	Cryptantha	pterocarya		wing nut cryptantha
	Pectocarya	heterocarpa		chuckwalla pectocarya
	Pectocarya	platycarpa		broadfruit combseed
	Tiquilia	plicata		fanleaf crinklemat
Brassicaceae	Brassica	tournefortii		
	Descurainia	pinnata	ssp. glabra	western tansymustard
	Dithyrea	californica		spectaclepod
	Lepidium	densiflorum		peppergrass
	Lepidium	lasiocarpum	var. lasiocarpum	shaggyfruit pepperweed
	Lesquerella	tenella		
Cactaceae	Streptanthella	longirostris		longbeak streptanthella
	Cylindropuntia	acanthocarpa	var. coloradensis	buckhorn cholla
	Cylindropuntia	basilaris	var. basilaris	beavertail
	Cylindropuntia	echinocarpa		silver cholla
	Cylindropuntia	ramosissima		pencil cholla
	Echinocactus	polycephalus		Cottontop cactus
	Ferocactus	cylindraceus	var. cylindraceus	barrelcactus
	Mammillaria	tetrancistra		Common fishhook cactus
	Sclerocactus	johnsonii		Johnson's fishhook cactus
Campanulaceae	Nemacladus	glanduliferus	var. orientalis	glandular threadplant
Chenopodiaceae	Atriplex	polycarpa		cattlespinach

Family	Genus	Species	Var./Sp.	Common name
	Chenopodium	album		Pigweed
	Salsola	tragus		Russian thistle
Cucurbitaceae	Cucurbita	palmata		Coyote melon
Cuscutaceae	Cuscuta	californica		
Euphorbiaceae	Chamaesyce	polycarpa		
Fabaceae	Acacia	greggii		catclaw acacia
	Dalea	mollis		
	Senna	armata		
Geraniaceae	Erodium	cicutarium		filaree
	Erodium	texanum		Texas filaree
Hydrophyllaceae	Nama	demissum	var. demissum	purplemat
	Phacelia	crenulata	var. crenulata	
	Phacelia	ivesiana		
Krameriaceae	Krameria	erecta		white rhatany
Liliaceae	Androstephium	breviflorum		pink funnel lily
Loasaceae	Mentzelia	obscura		small flowered blazing star
Malvaceae	Eremalche	exilis		white mallow
Onagraceae	Camissonia	boothii	var. condensata	Booth's evening primrose
	Camissonia	brevipes	var. brevipes	yellow cups
	Camissonia	claviformis	ssp. aurantiaca	brown-eyed primrose
	Camissonia	refracta		narrow-leafed suncup
	Oenothera	primiveris	ssp. bufonis	
Orobanchaceae	Orobanche	cooperi		Cooper's broomrape
Papaveraceae	Eschscholzia	glyptosperma		desert gold poppy
	Eschscholzia	minutiflora		
Poaceae	Aristida	purpurea	var. parishii	purple threeawn
	Bromus	madritensis	ssp. rubens	red brome
	Bromus	tectorum		June grass
	Pleuraphis	rigida		galleta grass
	Schismus	barbatus		Mediterranean grass
	Vulpia	octoflora	var. octoflora	six weeks fescue
Polemoniaceae	Gilia	scopulorum		rock gilia
	Gilia	sinuata		
	Ipomopsis	polycladon		
	Langloisia	setosissima	ssp. setosissima	Great Basin sunbonnet
	Linanthus	demissus		desert linanthus
	Linanthus	jonesii		Jones' linanthus
	Loeseliastrum	schottii		Schott's calico
Polygonaceae	Chorizanthe	brevicornu	var. berricornu	brittle spineflower
	Chorizanthe	rigida		rigid spineflower
	Eriogonum	deflexum	var. deflexum	skeleton weed
	Eriogonum	pusillum		yellow turban
	Eriogonum	reniforme		kidneyleaved buckwheat
	Eriogonum	thomasii		Thomas' buckwheat
	Eriogonum	trichopes	var. trichopes	little desert buckwheat
Zygophyllaceae	Larrea	tridentata		creosote bush

APPENDIX C
Wildlife Species Detected

Common Name	Scientific Name	Sign
Birds		
Ash-throated Flycatcher	<i>Myiarchus cinerascens</i>	O,V
Barn Swallow	<i>Hirundo rustica</i>	O
Black-throated Sparrow	<i>Amphispiza bilineata</i>	O,V
Brewer's Sparrow	<i>Spizella breweri</i>	O
Brown-headed Cowbird	<i>Molothrus ater</i>	O
Burrowing Owl	<i>Athene cunicularia</i>	B, S, F
Common Poorwill	<i>Phalaenoptilus nuttallii</i>	O
Common Raven	<i>Corvus corax</i>	O,V
Horned Lark	<i>Eremophila alpestris</i>	O,V
House Finch	<i>Carpodacus mexicanus</i>	O,V
Lesser Nighthawk	<i>Chordeiles acutipennis</i>	O,V
Loggerhead Shrike	<i>Lanius ludovicianus</i>	O
Mourning Dove	<i>Zenaida macroura</i>	O,V
Prairie Falcon	<i>Falco mexicanus</i>	O
Red-tailed Hawk	<i>Buteo jamaicensis</i>	O,V
Rock Pigeon	<i>Columba livia</i>	O
Western Kingbird	<i>Tyrannus verticalis</i>	O
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	O,V
Yellow-Headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	O
Reptiles		
Desert Tortoise	<i>Gopherus agassizii</i>	O, B, T, S, C
Desert Horned Lizard	<i>Phrynosoma platyrhinos</i>	O
Desert Iguana	<i>Dipsosaurus dorsalis</i>	O
Gopher Snake	<i>Pituophis catenifer deserticola</i>	O
Long-nosed Leopard Lizard	<i>Gambelia wislizenii</i>	O
Mojave Green Rattlesnake	<i>Crotalus scutulatus scutulatus</i>	O
Side-blotched Lizard	<i>Uta stansburiana</i>	O
Sidewinder	<i>Crotalus cerastes</i>	O
Western Whiptail	<i>Cnemidophorus tigris</i>	O
Zebra-tailed Lizard	<i>Callisaurus draconoides</i>	O
Mammals		
Antelope Ground Squirrel	<i>Ammospermophilus leucurus</i>	O
Black-tailed Jackrabbit	<i>Lepus californicus</i>	O, T, S
Desert Kit Fox	<i>Vulpes macrotis arsipus</i>	B, T, S

B = Burrow, C = Carcass, F = Feathers, O = Observed, S = Scat, T = Tracks, V = Vocalization

APPENDIX D
Nevada Natural Heritage Program Correspondence

LEO DROZDOFF
Director

Department of Conservation
and Natural Resources

JENNIFER E. NEWMARK
Administrator



BRIAN SANDOVAL
Governor



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STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
Nevada Natural Heritage Program
<http://heritage.nv.gov>

04 May 2011

Kent W. Hughes
K.W. Hughes Consulting
424 Elder Dr.
Claremont, CA 91711

RE: Data request received 03 May 2011

Dear Mr. Hughes:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or At Risk plant and animal taxa recorded within or near the Copper Mountain III Project area. We searched our database and maps for the following five kilometer radius around:

Township 23S Range 63E Sections 33 and 34
Township 24S Range 62E Sections 24, 25 and 36
Township 24S Range 63E Sections 05, 07, 08, 18, 19 and 31
Township 25S Range 62E Section 12
Township 25S Range 63E Section 06

The enclosed printout lists the taxa recorded within the given area. Please be aware that habitat may also be available for *Littlefield preussii* var. *laxiflorus*, a Taxon determined to be Critically Imperiled by the Nevada Natural Heritage Program (NNHP), and the rosy twotone beardtongue, *Penstemon bicolor* ssp. *roseus*, a Taxon Determined to be Vulnerable by the NNHP. The Nevada Department of Wildlife (NDOW) manages, protects, and restores Nevada's wildlife resources and associated habitat. Please contact Chet Van Dellen, NDOW GIS Coordinator (775.688.1565) to obtain further information regarding wildlife resources within and near your area of interest. Removal or destruction of state protected flora species (NRS 527.010) requires a special permit from Nevada Division of Forestry (NRS 527.270).

Please note that our data are dependent on the research and observations of many individuals and organizations, and in some cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

At Risk Taxa Recorded Near the Copper Mountain III Project Area in Clark Co.

Compiled by the Nevada Natural Heritage Program for K.W. Hughes Consulting

04 May 2011

November 2011

<u>Scientific name</u>	<u>Common name</u>	<u>Usfws</u>	<u>Blm</u>	<u>Usfs</u>	<u>State</u>	<u>Strank</u>	<u>Grank</u>	<u>UTM E</u>	<u>UTM N</u>	<u>Prec</u>	<u>Last observed</u>
<i>Scaphiopus agassizii</i>	desert tortoise (Mojave Desert pop.)	LT	S	T	YES	S2S3	G4	681267.75	3961449.70	S	1987-1990
<i>Scaphiopus agassizii</i>	desert tortoise (Mojave Desert pop.)	LT	S	T	YES	S2S3	G4	684718.15	3975424.35	S	1987-1990
<i>Scaphiopus agassizii</i>	desert tortoise (Mojave Desert pop.)	LT	S	T	YES	S2S3	G4	683242.97	3969166.38	S	1987-1990
<i>Scaphiopus agassizii</i>	desert tortoise (Mojave Desert pop.)	LT	S	T	YES	S2S3	G4	684114.40	3964683.64	S	1987-1990

Nevada Wildlife Service (Usfws) Categories for Listing under the Endangered Species Act:

1 Listed Threatened - likely to be classified as Endangered in the foreseeable future if present trends continue

and Management (Blm) Species Classification:

Nevada Special Status Species - USFWS listed, proposed or candidate for listing, or protected by Nevada state law

US Forest Service (Usfs) Species Classification:

Region 4 and/or Region 5 Threatened species

US Forest Service (Usfs) Species Classification:

Species protected under NRS 501.

US Forest Service (Usfs) Species Classification:

Decision, or area of uncertainty around latitude/longitude coordinates:

Section: within a three-second radius

Minutes: within a one-minute radius, approximately 2 km or 1.5 miles

General: within about 8 km or 5 miles, or to map quadrangle or place name

Nevada Natural Heritage Program Global (Grank) and State (Strank) Ranks for Threats and/or Vulnerability:

G Global rank indicator, based on worldwide distribution at the species level
T Global trinomial rank indicator, based on worldwide distribution at the infraspecific level
S State rank indicator, based on distribution within Nevada at the lowest taxonomic level
1 Critically imperiled and especially vulnerable to extinction or extirpation due to extreme rarity, imminent threats, or other factors
2 Imperiled due to rarity or other demonstrable factors
3 Vulnerable to decline because rare and local throughout its range, or with very restricted range
4 Long-term concern, though now apparently secure; usually rare in parts of its range, especially at its periphery
5 Demonstrably secure, widespread, and abundant
A Accidental within Nevada
B Breeding status within Nevada (excludes resident taxa)
H Historical; could be rediscovered
N Non-breeding status within Nevada (excludes resident taxa)
Q Taxonomic status uncertain
U Unrankable
Z Enduring occurrences cannot be defined (usually given to migrant or accidental birds)
? Assigned rank uncertain